



World Mineral Production

2015–2019



British
Geological
Survey

BRITISH GEOLOGICAL SURVEY

WORLD MINERAL PRODUCTION 2015–19

Authors: T J Brown, N E Idoine, C E Wrighton, E R Raycraft, S F Hobbs, R A Shaw, P Everett, E A Deady and C Kresse

Technical support: A C MacKenzie

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Keyworth, Nottingham NG12 5GG
☎ 0115-936 3100

The Lyell Centre, Research Avenue South, Edinburgh,
EH14 4AP
☎ 0131-667 1000

London Office, Natural History Museum (Earth
Galleries), Exhibition Road, London SW7 2DE
☎ 020-7589 4090

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*All communications regarding the content of this
publication should be addressed to the Chief Scientist,
Decarbonisation and Resource Management. British
Geological Survey, Keyworth, Nottingham NG12 5GG
☎ 0115-936 100 Fax 0115 936 3200
E-mail minerals@bgs.ac.uk*

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PREFACE

Welcome to the latest edition of World Mineral Production, which includes global mineral production data for 2019 and is a continuation of the dataset that began in 1913.

This publication is compiled from a comprehensive database, maintained by the British Geological Survey, through which we aim to provide a reliable, comprehensive and continuous set of data covering most of the minerals that enter international trade. In this volume we have set out the production figures by country for more than 70 mineral commodities, over the five-year period from 2015 to 2019. The objective of this series remains to present the latest production information obtained from official bodies in individual countries, although other sources are also used to ensure completeness and accuracy. The cooperation afforded to the British Geological Survey by numerous national and international organisations is gratefully acknowledged.

Overall changes in the world production of most minerals between 2018 and 2019 were again less than 10 per cent. However, as we publish this edition, the world continues to struggle to control the COVID-19 pandemic. Consequently we anticipate significant changes next year when we publish data for 2020 because of the impact this is having on the global minerals industry. To support understanding of this issue, BGS-led research is utilising this long running dataset to examine the impacts of extreme shocks on raw material supply chains for manufacturing transport systems.

World mineral production data for 2019 shows many interesting features and trends. Despite the Drakelands tungsten mine in the UK closing in 2018, and small changes in production from other countries, total global production of tungsten increased by nearly 12 per cent. This is largely due to a 16 per cent increase in tungsten output from China, which means it accounted for 83 per cent of total world mine production of tungsten in 2019, compared with 79 per cent in 2018. Production concentration is one of the key parameters of supply risk used to determine the 'criticality' of a mineral raw material. Therefore, this change may increase supply concerns about tungsten.

Other notable changes include a 13 per cent increase in total world mine production of nickel. This was largely driven by Indonesia, which increased its output by 59 per cent compared to 2018, with additional material feeding into significant increases in stainless steel production. However, Indonesia's output in 2020 is likely to be lower due to new export restrictions on raw materials.

In contrast, there was a 21 per cent decrease in world mine production of cobalt. This principally resulted from a 29 per cent decrease in output from the Democratic Republic of Congo (DRC), due to declining cobalt prices, caused by lower than expected demand and increased inventories. World production of lithium (measured as Li content) decreased by about 13 per cent because of

some notable shifts in global production. Increases in lithium production relative to 2018 from Chile (+ 16%) and Bolivia (+ 74%) were offset by declines in production relative to 2018 from Australia (– 18%) and Portugal (– 22%), and the cessation of output from Canada and Namibia. The overall decline in global production of lithium between 2018 and 2019 has resulted from lower than expected demand, which has caused prices to decrease. However, as the world transitions to a low-carbon economy, the use of cobalt and lithium for automotive electrification means that production of both metals will need to increase over the next decade.

During the past year, the BGS has provided advice to a number of UK Government departments on issues related to security of supply of minerals. It has also published a new series that provides an overview of the geological potential in the UK for selected raw materials used in decarbonisation technologies. Further afield, a recent BGS-led study in collaboration with the geological surveys of Finland, Norway and Sweden focussed on assessing cobalt resources in Europe and the potential for new discoveries. This study is the first harmonised cobalt resource assessment for Europe and is based on 509 cobalt-bearing deposits and occurrences in 25 countries.

BGS is also involved with notable projects on graphite and lithium in eastern Africa, and a number of projects focussed on battery raw materials in South America, including upscaling lithium brine supply in Bolivia and developing a framework for a strategic environmental and social assessment (SESA) for Argentina, Bolivia, Chile and Peru. Furthermore, BGS is leading the NERC-funded Lithium for Future Technology (LiFT) project, which over the next 3 years will investigate the geological cycles of lithium in a range of environments.

There is growing interest in the provision of minerals and metals from secondary sources and their flows in a circular economy. To address this, BGS is a partner in two of the new UKRI Interdisciplinary Circular Economy Centres, for Technology Metals (TechMetCE) and Mineral-based Construction Materials (ICEC-MCM).

As always, I would welcome any comments and suggestions that you have relating to this volume, which might help us to meet your ongoing needs.

Karen Hanghøj
Director

British Geological Survey
Keyworth
Nottingham

February 2021

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EXPLANATORY NOTES

Coverage

World Mineral Production covers the majority of economically important mineral commodities. For each commodity constant efforts are made to ensure that as many producing countries as possible are reported. For some commodities, where statistics on production are not publicly available, estimates are made. Users of this compilation are advised that more statistical information than can be included in a publication of this nature is held in the British Geological Survey files and is available for consultation. Historical data (from 1913 for many commodities) can be obtained from the predecessors to this series entitled *World Mineral Statistics* and the *Statistical Summary of the Mineral Industry*. Copies of these publications are available in the World Archive section of the website: www.mineralsUK.com.

Arrangement of countries

Countries are ordered alphabetically in geographical groupings as follows:

- Europe
- Africa
- North and Central America, including the Caribbean
- South America
- Asia
- Australasia, including the Pacific Islands

Metals

Mine production of many metals is expressed in terms of metal content. This is clearly indicated at the head of the table, adjacent to the unit used. For aluminium, cobalt, copper, iron, lead, nickel, tin and zinc, mine production and metal production are shown in separate tables. Unless otherwise specified, metal production statistics relate to metal recovered from both domestic and imported materials, whether primary or secondary, but exclude remelted material wherever possible.

World totals

For certain minerals and metals no world total is shown due to the non-availability of certain individual country totals.

Exclusion of Warranty

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Compilation of this volume of mineral statistics has been possible only by obtaining information from a very large number of organisations throughout the world, chiefly home and overseas government departments and specialist national or international authorities concerned with particular sectors of the minerals or metals industries. To all these bodies the British Geological Survey expresses its grateful acknowledgement for the information made available, whether in published form or provided by direct correspondence. Particular acknowledgement is made to the Mines Departments and other government agencies of many countries whose regular statements, yearbooks and other reports are worthy of direct consultations by readers in search of detail.

Specialist commodity organisations which have kindly allowed information to be reproduced include the International Copper Study Group, the International Lead and Zinc Study Group, the International Nickel Study Group and the Barytes Association. In a few instances, information on specific commodities has been obtained directly from company sources. The co-operation of other members of the International Consultative Group on Non-Ferrous Metal Statistics is also gratefully acknowledged.

Appendix 2 contains a fuller list of organisations to whom acknowledgement is made.

Units

The Statistics shown in this volume are expressed in metric units. The following factors are given for converting to non-metric units:

tonnes \times 0.9842 = long tons
tonnes \times 1.1023 = short tons
kilograms \times 2.2046 = pounds
kilograms \times 32.1507 = troy ounces
cubic metres \times 35.3147 = cubic feet
1 tonne of crude petroleum equals on average 7 barrels of crude petroleum.
1 flask mercury = 34.5 kilograms

Symbols

...	figures not available
0	quantity less than half unit shown
—	nil
*	estimated
BGS	British Geological Survey

STATISTICAL INFORMATION

Production of bauxite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Bosnia & Herzegovina	787 409	738 609	740 384	760 244	1 043 343
Croatia	11 900	9 780	12 215	11 780	14 342
France (a)	* 70 000	* 70 000	* 70 000	* 70 000	* 70 000
Greece	1 831 000	1 880 000	1 927 000	1 607 000	1 492 000
Hungary	8 300	16 700	1 300	4 200	—
Montenegro	50 369	* 516 200	927 847	468 164	774 725
Russia	5 398 000	5 432 000	5 523 000	5 651 000	5 574 000
Turkey	518 550	989 156	1 719 144	678 138	* 700 000
Ghana	1 014 605	1 143 676	1 476 966	1 011 302	1 116 334
Guinea (b)	20 905 000	32 424 000	51 701 000	59 573 707	70 173 326
Mozambique	4 985	1 451	3 182	9 912	8 024
Sierra Leone	1 435 195	1 429 600	1 823 570	2 034 360	1 962 500
Tanzania	205	73	12	7	—
Dominican Republic	1 724 162	7 318	—	—	—
Jamaica	9 628 824	8 540 130	8 244 628	10 058 228	9 022 286
USA (c)(d)	483 695	272 908	352 096	399 712	154 870
Brazil	37 057 000	39 244 200	39 244 200	38 122 500	31 937 900
Colombia	861	693	2 400	13 666	13 533
Guyana	1 526 467	1 479 090	1 459 223	1 926 053	1 919 747
Suriname	1 865 148	—	—	—	—
Venezuela	991 810	340 000	242 099	92 000	* 50 000
China	60 787 599	66 157 689	* 69 000 000	70 751 214	* 62 000 000
India (e)	28 123 789	24 745 487	22 786 106	23 687 721	22 073 398
Indonesia	611 000	* 1 485 000	* 4 200 000	13 243 197	16 592 739
Iran (f)	840 681	868 255	1 046 634	805 231	* 805 200
Kazakhstan	4 682 600	4 801 300	4 846 100	5 736 200	3 811 700
Malaysia	(g)* 27 700 000	(g)* 6 670 000	(g)* 810 000	589 684	900 561
Pakistan (h)	24 689	57 024	75 375	145 189	93 308
Saudi Arabia	3 022 000	4 768 000	4 117 000	4 323 000	4 780 800
Vietnam	* 1 100 000	* 1 400 000	* 2 800 000	3 569 700	* 3 200 000
Australia	80 909 261	83 517 148	89 420 589	95 947 593	105 543 787
Fiji	120 726	59 500	* 60 000	* 58 000	—
Solomon Islands	* 262 000	* 234 000	* 1 524 000	* 1 646 000	* 1 234 000
World total	293 500 000	289 300 000	316 200 000	343 000 000	347 100 000

Note(s)

(1) This table includes production of refractory bauxite.

(2) In addition to the countries listed, some bauxite continues to be produced in Mexico but it is all used as construction aggregates and figures are not reported.

(a) For non-metallurgical uses

(b) No adjustment has been made for moisture content

(c) Data for Alabama only

(d) Years ended 30 September of that stated

(e) Years ended 31 March following that stated

(f) Years ended 20 March following that stated

(g) Conservative BGS estimate based on reported exports

(h) Years ended 30 June of that stated

Production of alumina

tonnes (Al₂O₃ content)

Country	2015	2016	2017	2018	2019
Bosnia & Herzegovina	250 845	187 515	247 449	261 700	213 518
France	432 000	500 000	500 000	500 000	* 500 000
Germany	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Greece	674 420	693 460	695 400	677 000	672 400
Ireland, Republic of	1 897 616	1 898 054	1 880 057	1 818 065	1 860 970
Romania	404 825	467 031	472 606	571 772	460 911
Russia	2 593 000	2 682 000	2 822 000	2 763 000	2 755 000
Spain	1 633 000	1 579 000	1 588 000	1 589 000	1 595 000
Turkey	* 200 000	* 260 000	* 260 000	* 260 000	* 260 000
Ukraine	1 481 000	1 510 000	1 676 000	1 715 000	1 690 000
Guinea	—	—	—	182 000	368 000
Canada	1 560 932	1 566 467	1 570 000	1 568 000	1 522 000
Jamaica	1 864 645	1 865 278	1 782 373	2 483 572	2 172 972
USA	4 550 000	2 360 000	1 430 000	1 570 000	1 410 000
Brazil	10 451 500	10 885 500	11 060 600	8 258 000	9 170 800
Suriname	779 660	—	—	—	—
Venezuela	459 488	* 300 000	* 200 000	—	—
China	58 978 355	61 034 354	69 056 100	73 607 591	71 474 166
India (a)	5 572 293	6 075 839	6 119 449	6 446 370	6 706 500
Indonesia	69 869	* 495 000	917 099	842 536	1 148 422
Iran (b)	241 368	235 081	240 168	237 563	233 267
Japan	* 19 000	* 17 000	* 19 000	* 21 000	* 25 000
Kazakhstan	1 448 280	1 500 013	1 508 240	1 493 072	1 403 647
Saudi Arabia	846 000	1 429 000	1 484 000	1 774 000	1 798 340
United Arab Emirates	—	—	—	—	1 100 000
Vietnam	* 474 000	* 597 000	1 062 000	1 301 300	1 382 100
Australia	20 097 181	20 680 827	20 485 770	20 061 795	20 239 198
World total	118 000 000	119 800 000	128 100 000	131 000 000	131 200 000

Note(s)

(1) Where possible figures in this table show the alumina equivalent (Al₂O₃) of total hydrate produced, whether or not calcined.

(2) The figures in this table represent alumina produced from bauxite. Alumina-rich materials can also be derived from salt slags formed during the production of secondary aluminium.

(a) Years ended 31 March following that stated

(b) Years ended 20 March following that stated

Production of primary aluminium

tonnes (metric)

Country	2015	2016	2017	2018	2019
Azerbaijan	53 303	36 811	28 500	44 710	32 693
Bosnia & Herzegovina	118 253	106 649	125 536	131 508	67 690
France	415 000	424 600	430 000	390 000	* 390 000
Germany	541 379	546 806	549 995	528 868	507 934
Greece	179 993	181 189	181 630	187 465	182 100
Iceland	724 704	700 080	763 618	733 523	689 995
Montenegro	42 499	38 915	39 379	40 163	36 522
Netherlands	27 700	36 300	29 300	41 300	81 100
Norway	1 224 000	1 247 000	1 253 000	1 295 000	* 1 300 000
Romania	271 356	272 507	282 074	282 810	280 326
Russia	3 529 000	3 561 000	3 584 000	3 627 000	3 637 000
Slovakia	171 328	173 600	173 500	173 700	174 794
Slovenia	83 800	84 365	84 424	80 544	68 255
Spain	* 360 000	* 360 000	* 360 000	* 350 000	* 230 000
Sweden	116 000	124 000	123 000	125 000	120 000
Turkey	60 000	79 000	76 000	73 300	78 100
United Kingdom	47 000	46 000	48 000	44 400	39 400
Cameroon	* 73 000	* 74 000	* 76 000	* 66 000	* 54 000
Egypt (a)	279 365	355 000	298 000	* 260 000	* 260 000
Ghana (b)	28 519	33 010	33 364	42 867	43 200
Mozambique (a)	558 386	571 125	577 495	571 125	569 002
South Africa	695 000	701 000	716 000	714 000	717 000
Canada	2 880 035	3 208 707	3 211 882	2 923 204	2 853 771
USA	1 586 500	818 430	740 884	898 652	1 126 032
Argentina	430 388	424 996	433 391	437 771	438 200
Brazil	772 200	793 000	801 700	659 000	650 200
Venezuela	125 537	147 000	136 000	64 700	* 10 000
Bahrain	960 643	971 420	981 016	1 011 101	1 365 005
China	31 518 147	32 698 082	35 189 100	36 447 290	35 043 604
India (c)	2 354 949	2 896 629	3 400 618	3 696 181	3 628 834
Indonesia	257 149	245 483	218 816	242 043	250 393
Iran (d)	353 232	341 207	337 608	301 033	275 717
Kazakhstan	219 192	240 171	255 090	258 400	264 900
Malaysia	440 000	620 000	760 000	760 000	* 760 000
Oman	377 000	386 000	253 000	380 000	391 000
Qatar	638 155	643 514	650 000	616 000	645 000
Saudi Arabia	839 000	871 000	916 000	932 000	967 000
Tajikistan	139 123	129 300	103 100	95 796	100 800
United Arab Emirates	2 397 000	2 471 000	2 600 000	2 640 000	2 600 000
Australia	1 645 963	1 633 904	1 487 555	1 574 240	1 569 591
New Zealand	333 000	339 000	337 000	341 000	351 000
World total	57 900 000	59 600 000	62 600 000	64 100 000	62 900 000

Note(s)

(1) The figures in this table are for primary aluminium only. Aluminium can also be produced from secondary sources and may be recovered from salt slags.

(a) Years ended 30 June of that stated

(b) Exports

(c) Years ended 31 March following that stated

(d) Years ended 20 March following that stated

Mine production of antimony

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Russia	7 420	11 900	14 400	30 828	21 671
Turkey	1 917	2 700	4 750	3 500	* 3 500
South Africa	302	350	—	—	—
Canada	1	0	1	6	6
Guatemala	—	25	—	—	* 160
Honduras	14	* 6	4	20	* 10
Mexico	90	166	240	299	290
Bolivia	3 843	2 669	2 881	3 110	2 747
Ecuador	—	—	261	—	—
Burma	* 5 300	* 5 000	* 7 000	* 5 400	* 5 000
China	120 732	107 535	97 683	95 286	60 229
Iran (a)	1 020	1 765	2 489	2 551	* 2 500
Kazakhstan	* 700	* 900	* 200	* 100	* —
Kyrgyzstan	* 1 200	* 1 880	* 1 100	* 620	* 14
Laos	1 166	242	320	—	70
Pakistan (b)	114	21	15	—	—
Tajikistan	13 460	26 970	26 450	28 881	29 898
Thailand	* 700	32	—	—	—
Vietnam	219	229	230	244	306
Australia (b)	3 926	5 004	4 294	2 866	2 170
World total	162 000	167 000	162 000	174 000	129 000

Note(s)

(1) This table includes antimony content of antimonial lead alloys.

(a) Years ended 31 March following that stated

(b) Years ended 30 June of that stated

Production of white arsenic

tonnes (metric)

Country	2015	2016	2017	2018	2019
Belgium	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Russia	* 1 500	* 1 500	* 1 500	* 1 500	* 1 500
Morocco	7 567	6 122	6 879	5 578	6 000
Namibia	1 960	* 1 900	* 700	—	—
Bolivia	38	38	20	238	* 130
Peru	* —	23 252	22 319	20 408	24 915
China	* 25 000	* 25 000	* 24 000	* 24 000	* 24 000
Japan	* 45	* 45	* 45	* 45	* 40

Note(s)

(1) This table includes calculated trioxide equivalent of arsenic metal produced except where this would involve double counting.

Production of asbestos

tonnes (metric)

Country	2015	2016	2017	2018	2019
Russia	650 375	691 712	714 105	752 917	790 000
Brazil	232 052	117 677	129 000	101 000	* 100 000
Colombia	13 240	10 465	4 423	3 550	—
China	227 073	191 632	124 723	* 125 000	* 125 000
Kazakhstan	179 800	192 500	192 700	202 700	210 900
World total	1 300 000	1 200 000	1 200 000	1 200 000	1 200 000

Note(s)

(1) In addition to the countries listed, asbestos may also be produced in Afghanistan, North Korea, Romania and Slovakia.

Production of barytes

tonnes (metric)

Country	2015	2016	2017	2018	2019
Bulgaria	60 000	50 000	65 000	* 65 000	* 65 000
Georgia	500	400	400	—	—
Germany	45 311	49 373	34 177	39 218	30 000
Italy	* 3 500	* 3 000	* 3 000	* 3 000	* 3 000
Russia	361 000	434 000	178 000	163 000	163 000
Slovakia	20 000	25 000	15 690	9 500	5 770
Spain	3 000	3 000	3 000	* 3 000	* 3 000
Turkey	655 943	321 239	292 447	465 138	* 465 000
United Kingdom	* 50 000	* 56 000	* 55 000	* 55 000	* 50 000
Algeria	44 000	52 000	* 52 000	* 52 000	* 52 000
Egypt (a)	3 811	4 000	4 000	* 4 000	* 4 000
Morocco	1 212 130	676 940	818 016	899 365	* 1 100 000
Nigeria	* 3 323	540	717	387	370
Tunisia	10 000	10 000	—	* —	* —
Zimbabwe	500	200	200	* 200	* 200
Canada	32 000	32 000	32 000	* 32 000	* 32 000
Guatemala	544	500	43	63	* 60
Mexico	265 700	156 854	359 912	366 234	378 295
USA (b)	433 000	232 000	334 000	366 000	390 000
Argentina	12 917	12 389	5 977	7 225	3 898
Bolivia	46 732	16 632	29 114	53 163	* 46 000
Brazil	173 284	105 176	* 100 000	* 100 000	* 100 000
Colombia	4 003	3 068	2 028	2 586	2 270
Peru	28 407	7 953	9 182	15 621	16 373
Afghanistan	* 500	* 500	* 500	* 500	* 500
Burma	4 535	2 627	3 206	2 935	12 439
China	3 500 000	3 200 000	* 3 100 000	* 2 900 000	* 2 900 000
India (c)	1 252 262	1 246 371	2 038 915	* 2 000 000	* 2 000 000
Iran (d)	340 318	399 750	239 132	201 721	* 202 000
Kazakhstan	210 000	190 000	160 000	420 000	530 600
Laos	92 000	82 000	77 000	35 000	486 009
Malaysia	16 600	16 600	16 600	* 16 600	* 16 600
Pakistan (a)	118 773	157 858	91 711	88 847	116 480
Saudi Arabia	43 000	—	—	—	—
Thailand	170 621	211 920	147 954	67 490	33 644
Vietnam	80 000	30 000	30 000	* 30 000	* 30 000
Australia	6 016	7 139	8 957	6 534	1 982
World total	9 300 000	7 800 000	8 300 000	8 500 000	9 200 000

Note(s)

(1) This table may include small quantities of witherite.

(a) Years ended 30 June of that stated

(b) Sold or used by producers

(c) Years ended 31 March following that stated

(d) Years ended 20 March following that stated

Production of bentonite and fuller's earth

tonnes (metric)

Country	2015	2016	2017	2018	2019
Armenia					
Bentonite	1 592	5 543	11 724	21 029	32 424
Azerbaijan					
Bentonite	56 825	49 328	225 288	212 336	222 519
Bosnia & Herzegovina					
Bentonite (a)	67 261	102 858	92 344	87 358	94 601
Bulgaria					
Bentonite	61 600	37 100	54 100	* 54 000	* 54 000
Cyprus					
Bentonite	127 036	117 184	95 593	98 800	83 113
Czech Republic					
Bentonite	369 000	374 000	254 000	277 000	357 000
Denmark					
Bentonite	54 272	66 278	69 594	56 173	48 197
France					
Bentonite	(b) 36 404	42 567	(b) 24 497	(b) 35 696	* 30 000
Georgia					
Bentonite	* 20 000	* 20 000	* 21 000	25 894	* 26 000
Germany					
Bentonite	393 000	393 000	416 000	379 000	366 000
Greece					
Bentonite	1 123 320	883 220	1 087 800	1 355 000	1 300 000
Attapulgit	108 000	44 500	54 280	53 300	36 700
Hungary					
Bentonite	11 290	16 006	9 852	35 156	* 35 000
Italy					
Bentonite	12 840	45 978	86 106	100 067	82 720
North Macedonia					
Bentonite	9 012	1 968	912	2 945	682
Poland					
Bentonite	450	1 000	—	560	500
Romania					
Bentonite	19 355	26 758	33 777	34 809	41 964
Russia					
Bentonite	497 900	589 000	91 000	50 100	* 50 000
Slovakia					
Bentonite	205 000	158 000	226 082	270 000	251 000
Slovenia					
Bentonite	232	182	147	113	99
Spain					
Bentonite	100 604	155 038	177 565	178 463	160 477
Attapulgit	26 188	28 809	58 952	28 021	30 348
Sepiolite	524 915	518 699	482 550	698 058	595 448
Turkey					
Bentonite	3 134 911	1 744 912	1 481 617	1 331 955	* 1 332 000
Sepiolite	28 804	56 038	15 624	26 300	* 26 000
Ukraine					
Bentonite	* 210 000	* 210 000	113 000	178 000	* 110 000
Algeria					
Bentonite	34 100	37 200	35 600	36 000	36 700
Angola					
Fuller's earth	* 98 000	* 98 000	* 98 000	* 98 000	* 98 000
Egypt					
Bentonite (c)	* 2 000	* 1 900	* 4 600	* 9 600	* 6 900
Kenya					
Bentonite	* 110	* 110	* 110	* 110	* 110
Morocco					
Bentonite	92 290	103 266	174 546	172 749	* 173 000
Fuller's earth (d)	* 84 570	* 85 000	* 85 000	* 85 000	* 85 000
Mozambique					
Bentonite	354	322	284	* 290	* 290
Senegal					
Attapulgit	188 400	172 300	165 900	177 900	117 000
South Africa					
Bentonite	163 696	148 742	165 141	173 486	105 084
Attapulgit	18 280	16 374	18 333	17 121	11 422

Production of bentonite and fuller's earth

tonnes (metric)

Country	2015	2016	2017	2018	2019
Canada					
Bentonite (b)	583	468	* —	* —	* —
Cuba					
Bentonite	500	389	589	630	504
Guatemala					
Bentonite	31 582	18 081	20 562	16 953	* 17 000
Mexico					
Bentonite	294 236	109 176	148 475	264 800	* 265 000
Fuller's earth	108 215	111 713	110 860	—	* —
USA					
Bentonite (e)	4 050 000	3 600 000	4 430 000	4 670 000	* 4 700 000
Fuller's earth (e)	1 960 000	1 860 000	1 840 000	1 880 000	* 2 000 000
Argentina					
Bentonite	229 715	145 723	121 735	184 969	* 185 000
Bolivia					
Bentonite	1 023	525	68	2	* —
Brazil					
Bentonite	401 844	352 920	* 350 000	* 350 000	* 350 000
Chile					
Bentonite	1 434	1 288	1 584	525	395
Colombia					
Bentonite	* 9 000	* 9 000	* 9 000	* 9 000	* 9 000
Peru					
Bentonite	21 341	19 410	756	2 384	46 887
Uruguay					
Bentonite	4 250	6 650	6 640	7 760	6 726
Burma					
Bentonite (f)	700	600	600	—	* 500
China					
Bentonite	* 5 600 000	* 5 600 000	* 5 600 000	* 5 600 000	* 5 600 000
India					
Bentonite (f)	* 1 457 000	2 837 896	3 313 358	3 385 450	* 3 400 000
Fuller's earth (f)	473 998	478 204	797 684	553 294	* 550 000
Indonesia					
Bentonite	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Iran					
Bentonite (g)	418 840	842 421	723 718	731 908	* 732 000
Iraq					
Bentonite	* 6 300	* 6 300	* 6 300	* 6 300	* 6 300
Japan					
Bentonite	* 420 000	* 420 000	* 420 000	* 420 000	* 420 000
Korea (Rep. of)					
Bentonite	78 439	63 834	47 306	31 824	43 886
Fuller's earth	87 094	81 688	115 568	118 177	185 718
Pakistan					
Bentonite (c)	23 283	42 038	42 770	74 268	47 525
Fuller's earth (c)	8 005	13 740	18 185	9 188	12 529
Philippines					
Bentonite	3 477	3 361	1 249	658	* 650
Uzbekistan					
Bentonite	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Australia					
Bentonite (c)	70 072	90 917	116 762	87 330	56 215
Fuller's earth	16 216	12 200	11 871	* 10 000	* 8 000
New Zealand					
Bentonite	* 750	* 750	* 750	* 750	* 750
World total bentonite	20 000 000	19 500 000	20 400 000	21 100 000	20 900 000
World total fullers earth (a)	3 700 000	3 600 000	3 900 000	3 800 000	3 800 000

See note on the following page

Production of bentonite and fuller's earth

Note(s)

- (1) Bentonites consist of montmorillonite (one of the smectite group of clay minerals) and occur in two main varieties, calcium bentonite, the most commonly occurring, and sodium bentonite, industrially the more important.
 - (2) Calcium bentonite can be converted to sodium bentonite by a sodium-exchange process.
 - (3) In some countries, such as the United Kingdom, calcium bentonite is known as fuller's earth, a term which is also used to refer attapulgite, a mineralogically distinct clay mineral but exhibiting similar properties.
 - (4) In addition to the countries listed, Vietnam may produce bentonite and Algeria, France, Iran and Japan may produce fuller's earth.
- (a) Including attapulgite and sepiolite
 - (b) Sales
 - (c) Years ended 30 June of that stated
 - (d) Smectite
 - (e) Sold or used by producers
 - (f) Years ended 31 March following that stated
 - (g) Years ended 20 March following that stated

Production of beryl

tonnes (metric)

Country	2015	2016	2017	2018	2019
Madagascar (a)	* 140	* 140	* 140	* 140	* 140
Mozambique	312	181	53	416	* 420
Zambia	7	5	3	5	6
USA (b)	5 100	3 870	3 760	4 130	* 4 200
China	* 1 200	* 1 200	* 1 200	* 1 200	* 1 800

Note(s)

- (a) Includes ornamental and industrial products
- (b) Includes bertrandite ore, calculated as equivalent to beryl containing 11% beryllium oxide

Mine production of bismuth

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Armenia	* 4	* 4	* 4	* 4	* 4
Russia	* 45	* 45	* 45	* 45	* 45
Canada	2	2	5	5	6
Mexico	601	539	513	333	251
Bolivia	—	15	—	19	* 20
Peru (a)	* —	188	124	145	73
China	1 587	1 672	1 748	1 804	* 1 650
Japan (a)	568	409	489	547	* 540
Kazakhstan	* 20	* 270	* 240	* 290	* 7
Vietnam	1 510	* 1 700	2 743	3 099	1 062
World total	4 300	4 800	5 900	6 300	3 700

Note(s)

- (1) The figures in this table are in some instances derived from reported bismuth content of refined and impure metal plus recoverable in ores and concentrates exported.
- (2) Production for some countries may include bismuth produced from imported ores but it is thought that any resulting duplication is insignificant in the countries shown.
- (3) In addition to the countries listed, the Republic of Korea may produce bismuth but data are confidential.

(a) Metal production

Production of borates

tonnes (metric)

Country	2015	2016	2017	2018	2019
Russia	* 80 000	* 80 000	* 75 000	* 80 000	* 80 000
Turkey	2 180 976	2 070 257	2 494 627	3 970 486	* 4 000 000
USA (a)	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000
Argentina	248 683	148 390	129 918	71 212	* 80 000
Bolivia	166 451	199 924	223 515	232 268	* 214 500
Chile	517 584	558 854	607 076	398 411	352 255
Peru	662 709	33 792	—	100 552	111 108
China (b)	* 90 000	* 80 000	* 70 000	* 75 000	* 250 000
Iran (c)	675	—	1 150	1 200	* 1 200
Kazakhstan	* 500 000	* 510 000	* 500 000	* 500 000	* 500 000

Note(s)

- (a) Sold or used by producers
- (b) B₂O₃ equivalent
- (c) Years ended 20 March following that stated

Production of bromine

kilograms

Country	2015	2016	2017	2018	2019
Germany	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000
Ukraine	4 060 000	4 866 000	* 4 500 000	* 4 500 000	* 4 500 000
USA (a)	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000
China	* 60 000 000	* 57 600 000	* 60 000 000	* 60 000 000	* 60 000 000
India (b)	2 439 390	2 717 210	2 266 000	2 813 000	* 2 800 000
Israel	115 583 000	161 986 000	180 000 000	175 000 000	180 000 000
Japan	* 20 000 000	* 20 000 000	* 20 000 000	* 20 000 000	* 20 000 000
Jordan	* 100 000 000	* 100 000 000	* 100 000 000	* 100 000 000	* 100 000 000
Turkmenistan	* 500 000	* 500 000	* 500 000	* 500 000	* 500 000

Note(s)

(1) In addition to the countries listed, Russia may produce some bromine.

(a) Elemental bromine sold as such or used in the preparation of bromine compounds by primary producers

(b) Years ended 31 March following that stated

Production of cadmium

tonnes (metric)

Country	2015	2016	2017	2018	2019
Bulgaria	344	362	333	313	315
Germany	* 400	* 400	* 500	* 500	* 500
Netherlands	* 620	* 620	* 620	* 1 100	* 1 100
Norway	* 310	* 355	* 416	* 400	* 340
Poland	383	319	309	305	199
Russia	* 1 300	* 1 500	* 1 700	* 1 800	* 1 800
Canada (a)	1 159	2 305	1 802	1 857	1 803
Mexico	1 283	1 244	1 142	1 307	952
USA (a)	* 500	* 400	* 550	* 550	* 550
Argentina	107	91	96	74	45
Brazil	* 200	* 200	* 200	* 300	* 450
Peru	757	820	797	765	772
China	8 162	8 222	8 411	10 349	* 10 300
India (b)	—	35	47	—	—
Japan	2 188	1 989	2 310	2 108	* 1 900
Kazakhstan	1 475	2 682	* 1 500	* 1 500	* 1 400
Korea (Rep. of)	* 5 600	4 000	4 000	4 905	* 4 900
Korea, Dem. P.R. of	* 200	* 200	* 200	* 200	* 200
World total	25 000	25 700	24 900	28 300	27 500

Note(s)

(1) Data in this table excludes secondary metal unless otherwise stated.

(a) Including cadmium sponge and/or secondary metal

(b) Years ended 31 March following that stated

Production of chromium ores and concentrates

tonnes (metric)

Country	2015	2016	2017	2018	2019
Albania	639 909	726 671	808 016	1 142 719	* 1 200 000
Finland (a)	946 188	1 070 281	972 028	1 099 438	1 183 862
Russia	503 000	485 000	434 000	469 000	698 000
Turkey	2 515 188	2 024 821	2 554 222	2 896 651	3 363 791
Madagascar	88 560	71 043	64 200	35 381	* 35 000
South Africa	15 684 481	14 705 180	16 586 863	17 829 038	17 664 239
Sudan	15 143	45 000	32 000	27 000	* 34 000
Zimbabwe	208 328	112 026	688 838	894 660	1 550 064
Brazil	527 000	* 500 000	542 989	567 300	511 100
Colombia	30	—	—	—	—
Afghanistan	5 682	4 545	* 4 500	* 4 500	* 4 500
China	22 700	25 444	* 30 000	* 30 000	* 30 000
India (b)	2 915 584	3 727 780	3 480 941	3 970 688	3 836 530
Iran (c)(d)	276 570	342 332	301 119	259 918	* 260 000
Kazakhstan	5 382 800	5 542 900	6 313 300	6 888 800	7 019 000
Oman	442 600	450 800	631 600	884 900	607 700
Pakistan	* 330 000	* 230 000	* 350 000	* 324 700	* 467 400
Philippines (c)	15 502	25 745	20 849	45 011	31 743
Papua New Guinea (e)	—	—	90 121	92 139	112 749
World total	30 500 000	30 100 000	33 900 000	37 500 000	38 600 000

Note(s)

(a) Concentrates

(b) Years ended 31 March following that stated

(c) Including foundry sand and/or lumpy ore

(d) Years ended 20 March following that stated

(e) Exports

Production of coal

tonnes (metric)

Country	2015	2016	2017	2018	2019
Albania					
Lignite	69 000	4 000	46 000	98 000	31 000
Bosnia & Herzegovina					
Brown coal & lignite	12 111 830	13 488 147	14 033 504	14 378 767	13 376 548
Bulgaria					
Anthracite & Bituminous	—	10	—	* —	* —
Lignite	33 773 000	29 294 200	32 136 500	* 29 000 000	* 29 000 000
Brown coal	2 165 100	2 140 000	2 451 500	* 1 300 000	* 1 300 000
Czech Republic					
Bituminous	7 640 000	6 074 000	4 870 000	4 110 000	3 150 000
Brown coal	38 251 000	38 646 000	39 310 000	39 187 000	37 465 000
Georgia	305 870	296 500	268 113	137 912	15 900
Germany					
Anthracite & Bituminous	6 650 000	4 079 000	3 840 000	2 762 000	—
Brown coal	178 065 353	171 546 550	171 286 000	166 258 371	131 314 116
Greece					
Lignite	46 308 120	32 674 790	37 802 600	36 574 360	26 000 000
Hungary					
Bituminous	5 687	748	789	2 083	6 095
Lignite	9 095 000	9 164 000	7 890 000	7 843 000	6 790 000
Brown coal	162 490	68 061	83 341	53 606	50 742
Kosovo					
Lignite	8 240 694	8 800 848	7 574 697	7 169 767	8 063 051

Production of coal

tonnes (metric)

Country	2015	2016	2017	2018	2019
Montenegro					
Lignite	1 752 758	1 349 729	1 419 655	1 539 118	1 561 712
Brown coal	17 900	47 800	55 200	56 758	43 477
North Macedonia					
Lignite	5 927 749	5 130 055	5 056 918	4 946 486	5 066 083
Norway					
Bituminous (a)	1 203 000	962 000	134 000	142 500	108 000
Poland					
Coking coal	12 985 000	13 204 000	12 482 000	12 047 000	12 071 000
Other bituminous coal	59 701 000	57 580 000	53 493 000	51 767 000	50 031 000
Lignite	63 135 000	60 273 000	63 060 000	61 144 000	52 855 000
Romania					
Anthracite & Bituminous	1 418 596	1 068 507	784 433	538 092	174 021
Lignite	25 424 709	22 156 556	25 232 160	23 319 839	21 653 000
Russia	372 000 000	386 000 000	410 000 000	439 000 000	439 000 000
Serbia					
Bituminous	123 000	105 000	79 000	101 000	108 000
Lignite (b)	37 308 043	37 934 000	39 353 000	37 253 000	38 420 000
Brown coal	351 116	355 000	342 000	277 000	350 000
Slovakia					
Lignite	97 000	195 000	56 000	169 000	270 000
Brown coal	1 636 000	1 622 000	1 619 000	1 257 000	1 157 000
Slovenia					
Lignite	3 168 001	3 348 889	3 355 664	3 216 735	3 218 696
Spain					
Anthracite	1 113 336	736 035	370 445	292 898	—
Bituminous	610 395	365 872	791 303	483 159	—
Sub-bituminous	1 318 625	730 470	1 833 357	1 630 088	—
Turkey					
Anthracite	2 074 049	1 881 664	1 764 028	1 620 682	* 1 620 000
Lignite	58 730 170	77 896 048	84 303 492	99 017 695	* 99 018 000
Ukraine					
Bituminous (c)	29 917 000	31 630 000	24 167 000	26 254 000	25 530 400
United Kingdom					
Bituminous (d)	8 598 000	4 178 000	3 041 000	2 580 000	2 166 000
Botswana	2 065 778	1 873 547	2 215 782	2 482 313	2 110 891
Congo, Democratic Republic					
Bituminous	6 900	8 200	* 8 000	* 8 000	* 8 000
Eswatini (Swaziland)					
Anthracite	141 733	158 418	202 277	144 375	109 936
Ethiopia					
Lignite	34 131	14 582	35 000	2 767	* 2 800
Malawi	58 774	43 338	45 230	49 753	54 728
Mozambique					
Bituminous	* 8 600 000	5 500 000	11 260 000	12 926 416	* 10 000 000
Niger	221 024	246 631	233 792	221 580	225 920
Nigeria					
Sub-bituminous	47 000	46 000	* 47 000	* 48 000	* 48 000
South Africa					
Anthracite	3 395 505	2 612 215	2 886 078	3 316 837	3 077 839
Bituminous	248 680 484	248 399 455	249 456 924	249 939 594	251 332 874
Tanzania					
Bituminous	257 321	276 030	558 553	627 652	712 136
Zambia					
Bituminous	103 439	129 470	208 608	361 871	335 042
Zimbabwe					
Bituminous	4 336 100	1 635 800	2 928 000	3 347 500	2 729 922
Canada	61 931 000	61 461 000	60 866 000	54 600 000	51 801 000
Mexico					
Bituminous	15 716 400	13 676 593	12 748 000	* 12 700 000	* 12 700 000
USA					
Anthracite	1 942 591	1 509 856	1 734 636	1 719 706	2 368 120
Bituminous	366 166 474	293 286 820	320 642 381	326 777 482	307 431 973
Sub-bituminous	380 500 043	299 530 054	318 812 663	305 613 307	282 577 367
Lignite	64 915 983	66 299 871	61 381 007	51 733 060	48 245 042

Production of coal

tonnes (metric)

Country	2015	2016	2017	2018	2019
Argentina					
Bituminous	22 000	25 000	13 000	16 000	* 13 000
Brazil					
Bituminous & lignite	8 028 585	7 005 281	4 818 058	5 017 000	* 5 000 000
Chile					
Bituminous	157 017	114 887	70 281	38 021	41 385
Lignite	3 004 709	2 410 284	2 425 109	2 256 656	1 565 169
Colombia					
Anthracite (e)	7 133	29 721	25 051	* 26 000	* 25 400
Coking coal	4 823 869	4 411 104	5 981 970	* 4 900 000	* 4 860 000
Other bituminous coal	81 723 769	86 582 319	84 542 025	* 81 000 000	* 79 860 000
Peru					
Anthracite & Bituminous	251 788	266 208	301 050	216 581	181 010
Venezuela					
Bituminous	801 697	900 000	500 000	200 000	300 000
Afghanistan (f)	1 364 800	1 698 200	2 191 400	2 444 600	2 139 200
Bangladesh (g)	675 776	1 021 638	1 160 658	923 276	805 696
Bhutan	85 164	117 783	161 527	186 824	184 785
Burma	373 596	506 262	677 774	1 200 619	1 941 558
China	3 747 000 000	3 411 000 000	3 524 000 000	3 698 000 000	3 846 000 000
India					
Bituminous (h)	639 230 000	657 868 000	675 400 000	728 718 000	690 814 000
Lignite (h)	43 842 000	45 230 000	46 644 000	44 283 000	41 488 000
Indonesia					
Anthracite & Bituminous	461 566 080	456 197 775	461 248 184	557 772 940	616 159 594
Iran					
Bituminous (f)	1 339 000	1 340 000	1 496 000	* 1 500 000	* 1 500 000
Kazakhstan					
Bituminous	101 792 500	97 308 600	101 797 300	107 576 600	105 305 000
Lignite	5 525 700	5 750 400	6 094 500	6 560 800	5 778 200
Korea (Rep. of)					
Anthracite	1 764 000	1 727 000	1 485 000	1 201 920	1 084 000
Korea, Dem. P.R. of	31 115 000	35 741 000	21 738 000	* 18 000 000	* 18 000 000
Kyrgyzstan	1 928 700	1 851 300	1 870 400	2 395 200	2 532 700
Laos					
Anthracite	106 028	138 809	133 284	142 994	161 494
Lignite	4 464 068	13 097 121	13 439 492	15 903 277	15 263 562
Malaysia	2 559 444	2 414 765	2 988 212	2 652 813	3 459 122
Mongolia	23 979 000	35 096 500	49 480 200	50 009 300	50 833 700
Nepal					
Sub-bituminous (i)	6 754	1 722	7 270	11 522	7 184
Pakistan (c)(g)	3 407 659	3 749 312	3 953 992	4 470 000	5 371 865
Philippines					
Bituminous	7 377 639	11 211 254	11 932 328	11 755 360	13 751 291
Tajikistan	1 041 900	1 361 400	1 759 700	1 903 015	2 024 789
Thailand					
Lignite	15 150 549	17 069 712	16 258 637	14 851 950	14 071 710
Uzbekistan					
Bituminous	125 000	160 000	124 000	127 000	* 130 000
Lignite	3 361 000	3 707 000	3 915 000	4 013 000	* 4 000 000
Vietnam					
Anthracite	41 664 000	38 735 000	38 409 000	42 384 000	46 387 000
Australia					
Bituminous (j)	439 979 000	443 449 000	435 889 000	457 325 000	462 994 000
Brown coal (g)	60 957 000	59 757 000	56 095 000	45 062 000	42 256 000
New Zealand					
Bituminous	1 400 886	1 205 388	1 212 126	1 326 767	1 296 440
Sub-bituminous	1 665 676	1 348 199	1 386 950	1 604 454	1 450 815
Lignite	324 086	313 035	319 487	307 378	287 830
World total	7 935 000 000	7 474 000 000	7 683 000 000	8 022 000 000	8 076 000 000

See notes on the following page

Production of coal

Note(s)

- (1) There is no international agreement as to the separate definition of lignite and brown coal. In some cases they are distinguished. Elsewhere both may be aggregated under one or other term.
- (2) Data for coking coal is not always distinguished from other types of bituminous coal. The term "bituminous" in this table may include coking coal where the latter is not separately shown.
- (3) Where no sub-commodity is shown the figures relate to all ranks of coal.
- (a) Spitzbergen: not including production from mines controlled by Russia
- (b) Excluding production in Kosovo
- (c) Including lignite
- (d) Including anthracite
- (e) May also include other types of coal
- (f) Years ended 20 March following that stated
- (g) Years ended 30 June of that stated
- (h) Years ended 31 March following that stated
- (i) Years ended 15 July of that shown
- (j) Including sub-bituminous

Mine production of cobalt

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Finland	2 119	2 260	* 1 900	1 377	1 454
Russia	5 800	5 600	4 900	5 450	5 500
Botswana	316	248	—	—	—
Congo, Democratic Republic	83 529	68 822	82 461	109 402	77 964
Madagascar	3 920	3 660	3 090	2 890	2 930
Morocco (a)	1 722	2 081	1 924	1 806	2 397
South Africa (a)	1 362	1 101	1 062	1 007	1 027
Zambia (a)	2 979	5 276	2 649	1 766	1 271
Zimbabwe	355	409	445	403	400
Canada	7 489	7 148	6 058	5 608	5 132
Cuba	4 729	5 514	5 407	* 5 300	* 5 200
USA	760	690	640	590	* 500
Brazil	2 771	852	185	8	—
China	10 093	9 293	10 237	2 241	* 2 000
Indonesia	* 350	* 350	* 350	* 350	* 350
Philippines	4 140	4 400	3 700	5 400	6 700
Vietnam	277	134	—	—	—
Australia (b)	6 777	6 020	5 221	5 616	5 693
New Caledonia	2 391	3 188	2 780	2 104	1 703
Papua New Guinea	2 505	2 191	3 308	3 275	2 915
World total	144 000	129 00	136 000	155 000	123 000

Note(s)

- (1) There is frequently a considerable disparity between the cobalt content of ore raised and cobalt actually recovered.
- (2) In many countries it is not clear whether cobalt that is known to be present in the extracted ore is subsequently recovered, nor whether the reported figure is contained or recovered cobalt.
- (3) Consequently, the figures in this table may relate either to cobalt recovered or to cobalt contained in ore raised.
- (4) In addition to the countries listed, cobalt is contained within copper ores in Poland but this is not currently recovered.
- (a) Metal and/or refined
- (b) Years ended 30 June of that stated

Production of refined cobalt

tonnes (metric)

Country	2015	2016	2017	2018	2019
Belgium (a)	6 306	6 329	6 987	6 360	* 6 500
Finland	9 615	12 393	12 222	12 874	12 526
France	133	119	277	48	—
Norway	3 117	3 541	3 473	4 166	4 354
Russia	2 040	3 092	2 077	* 1 800	* 2 000
Congo, Democratic Republic (b)	3 195	82	120	68	—
Madagascar	3 464	3 273	3 053	2 850	2 900
Morocco	1 982	2 081	1 924	1 806	2 397
South Africa (c)	1 362	1 101	1 062	1 007	1 027
Zambia	2 979	5 276	2 649	1 766	1 271
Canada (d)	6 126	6 302	5 152	6 349	6 075
Brazil	1 300	400	185	8	—
China (a)	48 719	45 046	69 600	78 360	* 86 000
India	* 150	* 100	* 100	—	—
Japan	4 259	4 305	4 159	3 669	5 900
Australia	5 150	3 200	3 042	3 244	3 700
New Caledonia (e)	1 568	2 531	2 302	1 662	1 240

Note(s)

(1) Refined cobalt can be in the form of metal, oxides, carbonates, sulphates and many other compounds. Efforts are made to avoid double-counting but it is not always possible to be certain.

(a) Some refined cobalt production in China is recorded in Belgium

(b) Excludes white alloy and matte which are believed to be further processed in Belgium and elsewhere

(c) Includes metal and cobalt contained in sulphate

(d) Including oxides

(e) Carbonate

Mine production of copper

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Albania	2 106	218	—	2 601	* 3 000
Armenia	71 957	88 586	97 705	72 357	91 198
Azerbaijan	969	1 941	1 991	1 645	2 210
Bulgaria	71 748	70 573	73 003	69 841	70 927
Cyprus	2 121	1 754	1 293	908	703
Finland	41 085	47 488	53 144	46 755	32 592
Georgia	* 13 000	* 14 000	* 15 000	15 704	* 900
North Macedonia	11 400	10 200	9 000	8 000	7 100
Poland	426 196	424 000	419 000	401 300	449 000
Portugal	83 081	74 453	63 812	49 064	41 553
Romania	3 600	7 300	7 400	8 722	9 200
Russia	711 400	702 300	762 300	871 700	813 600
Serbia	29 827	41 300	44 800	44 100	44 000
Slovakia	58	39	32	21	17
Spain	112 690	167 736	198 353	187 714	170 556
Sweden	75 125	78 992	104 450	106 142	99 332
Turkey	108 000	* 100 000	83 000	79 600	* 73 500
Botswana	9 162	12 415	1 239	1 462	—
Congo, Democratic Republic	1 039 007	1 023 687	1 094 638	1 225 227	1 420 386
Eritrea	61 600	25 300	7 900	17 300	16 008
Mauritania	45 001	32 820	28 791	28 138	29 620
Morocco	26 900	31 800	35 400	32 400	* 34 000
Namibia	14 010	16 653	15 534	15 177	16 108
South Africa	77 360	65 257	65 503	46 900	52 501
Tanzania	* 16 800	* 17 400	* 11 500	* 10 000	* 10 000
Zambia	710 860	725 359	786 731	851 089	797 518
Zimbabwe	8 218	9 101	8 839	9 077	8 700
Canada	714 647	693 059	597 194	548 011	560 781
Dominican Republic	7 324	9 725	9 618	8 588	6 047
Mexico	594 451	766 129	742 246	696 580	768 542
Panama	—	—	—	—	147 480
USA	1 380 000	1 430 000	1 260 000	1 220 000	1 260 000
Argentina	61 800	81 900	33 300	17 400	—
Bolivia	9 479	8 718	7 219	5 216	4 478
Brazil	359 463	337 600	384 542	385 800	363 300
Chile	5 772 100	5 552 600	5 503 500	5 831 600	5 787 400
Colombia	5 463	8 493	9 355	9 918	7 641
Ecuador	* 1 800	* 1 000	* 8 200	* 8 000	6 100
Peru	1 700 817	2 353 859	2 445 585	2 437 035	2 455 440
Burma	* 71 000	* 95 000	* 116 000	* 180 000	* 219 000
China	1 712 065	1 900 188	1 706 400	1 615 234	1 683 700
India (a)	32 493	31 999	33 708	36 900	30 466
Indonesia	578 600	728 000	622 030	651 136	351 000
Iran	257 000	282 000	295 621	310 000	310 000
Kazakhstan	473 600	474 800	557 800	635 500	608 000
Korea, Dem. P.R. of	8 600	12 600	1 800	* —	* 2 000
Kyrgyzstan	3 100	8 200	7 500	7 200	7 000
Laos	167 702	177 939	153 304	154 948	140 935
Mongolia	318 300	335 700	310 700	308 400	297 500
Oman	7 828	—	—	—	—
Pakistan	* 16 000	* 14 000	10 052	12 538	13 049
Philippines	83 835	83 649	68 156	69 933	71 892
Saudi Arabia	11 563	27 500	36 279	57 300	67 300
Tajikistan	1 400	2 500	6 100	8 500	* 8 500
Uzbekistan	* 103 000	* 135 000	* 140 100	* 141 200	* 141 000
Vietnam	22 524	22 636	21 451	26 235	30 551
Australia	995 881	947 555	849 121	910 896	934 055
Papua New Guinea	45 185	80 022	105 419	96 287	99 398
World total	19 300 000	20 400 000	20 000 000	20 600 000	20 700 000

Note(s)

(a) Years ended 31 March following that stated

Smelter production of copper

tonnes (metric)

Country	2015	2016	2017	2018	2019
Armenia	11 601	12 920	12 051	8 831	—
Bulgaria	292 200	245 000	322 700	316 900	255 200
Finland	141 474	145 189	133 197	139 087	120 369
Germany	338 300	342 800	332 600	311 200	288 600
Norway	35 477	28 123	22 695	20 590	21 962
Poland	514 774	446 902	457 549	461 865	489 242
Russia	661 000	665 000	730 000	789 000	790 500
Serbia	43 000	61 000	68 200	66 200	82 400
Spain	286 300	292 300	272 000	284 800	245 800
Sweden	137 400	131 500	150 000	150 000	135 900
Turkey	* 45 400	* 46 200	* 46 000	* 46 000	* 46 000
Congo, Democratic Republic	—	—	—	—	* 2 000
Namibia	44 504	40 181	40 476	48 971	45 953
South Africa	60 900	51 000	52 600	33 300	26 000
Tanzania	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Zambia (a)	648 800	698 100	787 900	828 700	638 500
Canada	281 416	304 349	289 400	290 100	290 000
Mexico	256 252	267 843	270 213	286 242	277 654
USA	527 000	563 000	470 000	536 000	466 000
Brazil	157 800	188 500	262 400	132 200	110 900
Chile	1 382 000	1 365 300	1 264 600	1 246 100	1 011 200
Peru	327 909	309 469	316 882	327 821	294 315
China	5 504 817	6 115 035	6 424 200	6 575 016	7 082 700
India	792 600	769 800	813 100	481 500	342 300
Indonesia	199 700	255 700	245 800	258 800	246 100
Iran	153 500	153 400	114 200	204 100	201 100
Japan	1 243 813	1 289 885	1 192 179	1 263 456	1 169 664
Kazakhstan	283 000	294 100	296 300	295 000	295 000
Korea (Rep. of)	511 200	510 000	510 000	530 000	520 000
Korea, Dem. P.R. of	* 4 000	* —	* —	* —	* —
Oman	1 300	3 481	264	—	—
Pakistan	* 15 000	* 14 000	10 052	12 538	13 049
Philippines	189 200	215 000	240 000	170 900	217 800
Uzbekistan	* 100 000	* 100 000	* 100 000	117 000	147 300
Vietnam	11 300	11 600	11 500	* 11 500	* 19 200
Australia	432 843	445 202	359 832	360 993	401 277
World total	15 600 000	16 400 000	16 600 000	16 600 000	16 300 000

Note(s)

(1) This table shows primary metal in the form of blister and anode produced from concentrates, and may include copper produced from scrap but this is excluded when it can be separately identified.

(a) Including leach cathodes

Production of refined copper

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	102 900	103 215	109 800	107 200	128 200
Belgium	378 600	366 700	398 900	390 200	356 600
Bulgaria	229 723	216 428	228 457	224 098	207 196
Cyprus	2 121	1 754	1 293	908	703
Finland	141 474	145 189	133 197	18 281	13 009
Germany	678 100	671 400	694 400	672 400	629 700
Italy	7 300	6 600	8 700	7 500	9 800
North Macedonia	2 268	1 396	958	768	719
Norway	35 477	28 123	22 695	20 590	21 962
Poland	574 310	535 597	522 022	501 817	565 588
Russia	874 300	860 100	949 000	1 016 000	* 1 028 000
Serbia	44 000	61 309	67 179	72 087	74 000
Spain	419 900	429 400	415 200	423 800	386 700
Sweden	206 059	207 220	219 462	224 487	201 345
Turkey	84 000	52 400	95 000	126 300	116 000
Ukraine	18 500	27 100	25 186	24 901	20 409
Congo, Democratic Republic	891 369	818 925	825 346	999 513	1 160 223
Egypt	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Namibia	10 659	16 391	15 466	15 177	15 743
South Africa	64 400	53 900	66 200	43 900	35 600
Zambia	495 600	426 400	466 200	458 200	264 500
Zimbabwe	* —	—	—	100	—
Canada	330 902	314 183	330 386	291 250	281 176
Mexico	434 100	462 300	446 000	436 900	* 428 000
USA	1 139 000	1 226 000	1 080 000	1 110 000	1 030 000
Argentina	* 14 000	* 14 000	* 14 000	* 14 000	* 14 000
Bolivia	1 789	2 199	2 269	3 300	3 100
Brazil	241 469	225 558	143 000	147 000	174 000
Chile	2 688 400	2 612 500	2 429 500	2 461 200	2 269 100
Peru	352 960	331 324	335 329	336 798	307 862
Burma	65 041	92 560	* 115 100	179 000	218 000
China	7 968 946	8 420 611	8 915 100	9 023 965	9 784 238
India (a)	790 372	787 657	830 524	454 337	407 243
Indonesia	199 626	253 460	270 769	274 641	257 977
Iran (b)	190 685	193 028	160 128	247 384	250 130
Japan	1 483 131	1 553 133	1 488 080	1 594 517	1 495 359
Kazakhstan	394 641	408 435	426 191	438 115	477 011
Korea (Rep. of)	644 603	644 788	663 327	673 364	659 000
Korea, Dem. P.R. of	* 4 000	* —	* —	* —	* —
Laos	89 253	78 714	62 941	71 268	71 651
Mongolia	14 990	15 010	14 689	14 175	11 760
Oman (c)	1 300	3 481	264	—	—
Philippines	153 000	185 100	205 000	170 800	217 300
Thailand	187	—	—	—	—
Uzbekistan	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Vietnam	11 300	11 600	11 500	* 11 500	* 19 200
Australia	474 963	474 954	386 249	377 036	425 679
World total	23 100 000	23 400 000	23 700 000	23 800 000	24 100 000

Note(s)

(1) Figures relate to both primary and secondary refined copper, whether electrolytic or fire refined. Metal recovered from secondary materials by remelting alone is excluded.

(2) In addition to the countries listed, Albania and Colombia produce refined copper

(a) Years ended 31 March following that stated

(b) Years ended 20 March following that stated

(c) Sales

Production of diamond

Carats

Country	2015	2016	2017	2018	2019
Russia	41 912 390	40 322 030	42 614 780	43 161 058	45 271 212
Angola	9 018 942	9 021 767	9 438 802	8 408 688	9 149 746
Botswana	20 824 000	20 954 000	22 900 000	27 373 000	23 278 000
Cameroon (a)	* 4 500	* 3 000	* 3 500	* 3 600	* 3 500
Central African Republic	(b) ...	10 654	47 637	13 572	23 603
Congo	40 057	12 107	46 758	47 579	2 963
Congo, Democratic Republic	14 284 000	15 523 000	18 891 800	15 131 210	13 469 699
Ghana	174 364	143 005	86 925	57 531	33 789
Guinea	166 880	112 796	181 450	292 707	229 180
Ivory Coast	14 925	20 235	7 361	5 678	3 990
Lesotho	304 232	342 014	1 126 409	1 294 283	1 113 526
Liberia	65 996	60 367	60 636	75 554	58 642
Namibia	1 774 509	1 584 168	1 815 709	2 091 781	1 745 281
Sierra Leone	1 000 089	549 502	288 260	739 600	824 430
South Africa	8 232 627	8 450 758	9 685 235	9 911 460	7 177 435
Tanzania	216 491	216 032	304 456	381 302	416 750
Togo	46	—	2	—	16
Zimbabwe	3 490 881	2 102 873	2 507 862	3 252 418	2 119 189
Canada	11 677 472	11 103 500	23 198 761	22 789 001	18 491 388
Brazil	31 826	183 500	254 896	250 940	165 992
Guyana	118 451	139 890	52 161	62 111	54 993
China	* —	* 127	* 230	* 99	* 51
India (c)	36 044	36 491	39 699	38 437	27 931
Australia	13 560 795	13 958 000	17 135 000	14 008 054	12 154 544
World total	126 900 000	124 800 000	150 700 000	149 400 000	135 800 000

Note(s)

(1) This table does not show production of synthetic diamond.

(2) So far as possible the amounts shown include estimates for artisanal and/or illegal production.

(a) Including artisanal production

(b) Under temporary suspension by the Kimberley Process and not trading in rough diamonds; however it is unclear whether production was actually zero in these years

(c) Years ended 31 March following that stated

Production of diatomite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Armenia	18 915	25 486	23 465	* 20 000	* 20 000
Czech Republic	15 000	26 000	34 000	31 000	43 000
Denmark					
Moler (a)	127 500	114 375	110 000	99 375	108 750
France	* 90 000	* 90 000	* 90 000	* 90 000	* 90 000
Germany	52 784	54 764	56 721	58 340	53 802
Hungary	1 092	738	1 173	853	* 850
Poland	600	500	500	580	680
Russia	66 200	47 300	52 000	50 600	* 51 000
Spain (b)	47 706	48 231	70 550	61 056	62 741
Turkey	86 656	61 722	169 584	242 789	* 243 000
Algeria	2 400	2 500	2 439	2 468	2 437
Ethiopia (c)	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Kenya	1 090	1 238	1 406	1 548	921
Mozambique	844	728	179	66 429	* 66 000
Costa Rica	* 3 000	1 953	1 953	1 839	1 546
Mexico	89 810	96 686	96 374	92 700	92 635
USA (d)	832 000	686 000	768 000	957 000	* 980 000
Argentina	60 951	57 113	70 419	72 436	* 72 400
Brazil	5 530	16 408	* 16 000	* 16 000	* 16 000
Chile	26 186	26 937	27 557	24 736	21 328
Peru	120 672	107 265	96 590	96 532	91 103
China	* 350 000	* 420 000	* 420 000	* 420 000	* 420 000
Iran (e)	—	15 000	2 660	3 000	* 3 000
Japan	* 100 000	* 100 000	* 100 000	* 40 000	* 40 000
Korea (Rep. of)	15 310	20 564	133 741	25 902	40 910
Australia (f)	5 289	1 033	1 081	7	3
New Zealand	* 44 000	* 44 000	* 44 000	* 44 000	* 44 000
World total	2 200 000	2 100 000	2 400 000	2 500 000	2 600 000

Note(s)

(1) In addition to the countries listed, Georgia, Saudi Arabia and Vietnam may produce diatomite.

(a) Moler is an impure diatomite containing a large proportion of clay

(b) Including the mineral Tripoli

(c) Years ended 7 July of that stated

(d) Sold or used by producers

(e) Years ended 20 March following that stated

(f) Years ended 30 June of that stated

Production of feldspar

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	35 000	35 000	35 000	35 000	* 35 000
Czech Republic	433 000	454 000	368 000	449 000	460 000
Finland	38 026	18 549	14 926	17 469	17 997
France	* 550 000	* 550 000	* 550 000	* 500 000	* 500 000
Germany	253 411	284 569	276 747	252 693	235 000
Greenland	—	—	—	—	19 456
Italy	4 700 000	4 000 000	3 500 000	4 000 000	* 4 000 000
North Macedonia	20 289	19 919	21 237	30 813	29 519
Norway	76	70 015	87 894	* 88 000	* 88 000
Poland	537 520	510 900	568 600	593 100	593 004
Portugal (a)	178 622	249 996	228 491	227 367	179 584
Romania	13 244	4 501	* 4 500	* 4 500	* 4 500
Russia	232 995	278 142	281 236	294 411	* 294 000
Serbia	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Slovakia	4 000	8 000	15 800	17 000	19 100
Spain	558 273	634 519	819 218	616 229	649 580
Sweden	29 000	22 000	22 000	28 000	* 28 000
Turkey	10 422 766	11 033 578	10 273 573	11 474 040	* 11 474 000
Ukraine (b)	44 460	33 627	* 30 000	* 30 000	* 30 000
Algeria	154 400	168 400	* 170 000	* 170 000	* 170 000
Burkina Faso	988	—	—	—	—
Egypt	420 508	* 230 000	* 230 000	* 230 000	* 200 000
Ethiopia (c)	* 600	* 600	* 600	* 600	* 600
Morocco	* 45 000	* 40 000	* 40 000	* 40 000	* 40 000
Nigeria	47 000	34 144	27 660	41 355	33 226
South Africa	126 542	131 023	116 400	76 803	76 255
Sudan	28 238	49 000	29 000	36 000	* 36 000
Cuba	3 300	3 900	3 600	3 000	2 100
Guatemala	10 340	30 428	29 000	30 257	28 771
Mexico	159 372	127 213	233 050	209 770	304 084
USA	520 000	470 000	440 000	550 000	* 470 000
Argentina	186 974	155 217	88 465	56 500	* 56 500
Brazil	517 597	486 684	400 000	400 000	* 400 000
Chile	6 577	6 352	4 421	2 789	55
Colombia	159 740	151 759	150 334	141 794	161 518
Ecuador	253 253	148 506	92 871	43 197	* 40 000
Peru	16 979	16 630	14 930	31 588	29 134
Uruguay	200	460	370	380	—
Venezuela	75 527	* 75 000	36 313	* 30 000	* 30 000
China	* 2 060 000	* 2 684 000	* 1 618 000	* 2 000 000	* 2 000 000
India (d)	3 343 773	6 434 788	4 270 245	* 4 300 000	* 4 300 000
Indonesia	* 18 000	* 18 000	* 39 000	* 11 000	* 11 000
Iran (e)	736 149	784 412	1 339 453	2 057 640	* 2 100 000
Japan (f)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Korea (Rep. of)	601 030	654 398	717 177	617 166	396 896
Malaysia	442 980	441 857	412 004	414 441	206 798
Pakistan (g)	141 582	316 289	273 468	151 743	346 236
Philippines	38 067	46 630	* 46 600	* 46 600	* 46 600
Saudi Arabia	176 000	188 000	197 000	206 000	* 206 000
Sri Lanka	22 683	25 211	26 137	* 26 000	* 26 000
Taiwan	1	0	—	0	—
Thailand	1 329 816	1 232 532	1 385 925	1 117 803	1 251 143
Uzbekistan	* 4 300	* 4 300	* 4 300	* 4 300	* 4 300
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Australia (g)	* 45 000	* 36 000	* 5 000	* 5 100	* 5 800
World total	29 963 000	33 619 000	29 759 000	31 929 000	31 856 000

See notes on the following page.

Production of feldspar

Note(s)

- (a) Includes feldspathic sand
- (b) Figures do not include production from Crimea or Sevastopol
- (c) Years ended 6 July of that stated
- (d) Years ended 31 March following that stated
- (e) Years ended 20 March following that stated
- (f) Including weathered granite feldspar
- (g) Years ended 30 June of that stated

Production of fluorspar

tonnes (metric)

Country	2015	2016	2017	2018	2019
Bulgaria	146 500	4 400	—	—	—
Germany	49 801	52 552	45 375	49 197	80 000
Russia	2 000	3 000	2 700	6 000	4 000
Spain	157 486	162 989	154 931	176 188	144 167
Turkey	6 238	10 339	20 150	6 200	* 6 200
United Kingdom	* 12 000	* 12 000	* 11 000	* 11 000	* 12 000
Egypt (a)	25 902	26 000	* 26 000	* 26 000	* 26 000
Kenya	70 096	42 656	6 945	—	—
Morocco	80 890	73 920	75 500	87 874	* 100 000
Namibia	—	1 495	—	—	—
South Africa	* 135 000	* 165 000	* 257 000	* 242 000	* 240 000
Mexico	624 574	655 555	741 678	1 182 058	1 231 465
Argentina	58 556	14 222	13 696	7 924	* 7 900
Brazil	23 623	18 260	24 000	26 000	* 18 000
Colombia	47	75	57	46	—
Afghanistan	4 108	* 4 000	* 4 000	* 4 000	* 4 000
China	* 3 820 000	* 3 470 000	* 3 700 000	* 4 000 000	* 4 000 000
India (b)	2 333	1 175	1 314	1 079	1 251
Iran (c)	57 232	122 427	36 511	89 102	* 89 000
Kazakhstan	* 100 000	* 100 000	* 100 000	* 100 000	87 800
Korea, Dem. P.R. of	* 3 000	* 5 000	* 7 000	* 7 000	* 7 000
Kyrgyzstan	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Mongolia	183 500	167 700	108 900	101 200	156 100
Pakistan (a)	5 962	9 494	2 263	2 777	4 208
Thailand	15 095	31 948	5 500	16 700	17 747
Vietnam	193 164	* 217 900	234 905	238 702	238 003
World total	5 800 000	5 400 000	5 600 000	6 400 000	6 500 000

Note(s)

- (1) In addition, the USA produced the following amounts of fluorspar equivalent in fluorosilicic acid derived from processing phosphate rock ('000 t): 2015:114; 2016: 105; 2017: 72; 2018: 64; 2019: 27.

- (a) Years ended 30 June of that stated
- (b) Years ended 31 March following that stated
- (c) Years ended 20 March following that stated

Production of primary gallium

tonnes (metric)

Country	2015	2016	2017	2018	2019
Germany	11	23	—	—	—
Russia	* 13	* 13	* 13	* 13	* 13
Ukraine	* 9	* 9	* 4	* 4	* 4
China	284	171	319	404	357
Japan	6	3	3	3	* 3
Korea (Rep. of) (a)	* 3	* 3	* 3	* 3	* 3

Note(s)

- (1) Accurate data for gallium is difficult to obtain because it is produced only as a by-product of bauxite or zinc processing using proprietary techniques. As a consequence, this table may not be complete.
- (2) Lower grade production is often subsequently refined to higher grade material which complicates the collection of data as double counting is a significant risk.
- (3) In addition to the above primary production, there is also believed to be significant production of refined gallium from scrap recycling.

(a) Primary production only

Production of germanium metal

tonnes (metric)

Country	2015	2016	2017	2018	2019
Finland	13	0	—	—	—
Russia	* 5	* 6	* 6	* 6	* 6
USA (a)	* 3	* 2	* 3	* 3	* 3
China	94	82	79	95	86

Note(s)

- (1) Germanium is also believed to be recovered from imported or domestic material in Belgium, Canada, Germany, Japan.

(a) Including production of secondary metal

Mine production of gold

In addition to 'industrial scale' gold mines around the World total, a significant quantity of gold is mined by small scale or artisanal producers, both on a legal and illegal basis. In some countries the quantities involved with artisanal mining can be relatively large. The compilation of reliable data for the quantity produced by artisanal mining in each country is difficult, particularly where the actions are illegal. Artisanal mining can be seasonal, temporary and highly variable, on both geographical and temporal scales.

Where possible, the table attempts to include estimates for artisanal mining of gold in order that the calculated World total totals are as complete as possible. However, the difficulties noted above mean that these totals cannot be completely accurate and they are consequently rounded to a greater degree than the individual country figures may suggest is appropriate. This is an attempt to convey the level of uncertainty associated with these total figures.

For clarity, additional comments on specific countries are shown below (there may be other countries where artisanal mining also occurs; these comments are not intended to be exhaustive):-

Benin – artisanal gold mining is known to take place but no reliable estimates are available. It has been estimated to be in the region of 20–30 kg per year, but it could be larger in some years.

Burkina Faso – official figures include 259 kg for artisanal mining in 2019; 306 kg in 2018; 150 kg in 2017; 235 kg in 2016; and 302 kg in 2015. It is believed the actual artisanal production is likely to be higher.

Burma – the figures shown in the table are reported and are believed to include artisanal mining.

Cameroon – all gold mining is currently small scale or artisanal. Available estimates vary widely, from as low as 500 kg per year to something in the order of 1500 kg or 2000 kg per year.

Central African Republic – artisanal gold mining is known to take place. No reliable estimates are available but it could be in the region of 50–80 kg per year. The figures shown are reported and it is assumed these are artisanal but they may not be fully inclusive in every year.

Colombia – Artisanal and small-scale mining, both legal and illegal, is extensive within Colombia. Although the government is taking steps to improve the licencing of legal artisanal mining and also to crack down on illegal activities, during the last decade it is believed that illegal mining has grown to the extent that it has become more widespread than legal mining. Some illegal mining and trade is thought to be coordinated by organised crime groups. It is possible that illegally mined material is brought into or out of the country without being recorded. It can therefore be assumed that the total mine production of gold significantly exceeds the reported figure, however it has not been possible to make a reliable estimate for this additional material.

Congo – all gold mining is believed to be small scale or artisanal and it is believed there are more than 200 locations where this occurs. A nominal estimate of 150 kg per year is shown in the table.

Costa Rica – all gold mining is currently artisanal. The figures in the table are reported by an official source.

Democratic Republic of Congo – artisanal mining is quite extensive, the figures shown include estimates for artisanal mining ranging from 4000 to 11000 kg per year.

Equatorial Guinea – artisanal gold mining is very likely to be taking place but no accurate information is available. A nominal estimate of 200 kg per year is included in the table but it could be more or less than this.

Ethiopia – small scale and artisanal gold mining is significant, but not all of it is illegal because some artisanal miners operate under a formal license. A proportion of the gold mined from artisanal sources is sold to the national bank but illicit sales to non-licensed buyers remains widespread. National bank purchases of gold from artisanal sources in fiscal year 2014/15 amounted to 5473 kg; in 2015/16 to 4145 kg and in 2016/17 to 1920 kg. Actual artisanal production could be higher.

France (French Guiana) – the table includes an estimate of 5000 kg to 9000 kg per year for artisanal mining which is not included in the official reported figures.

Gabon – attempts to regulate artisanal gold mining are being undertaken with gold from artisanal miners being purchased by a government agency from 2013. The figures in the table include 55 kg for artisanal mining in 2015; 50 kg in 2016 and 40 kg in 2017. Data from 2018 is all artisanal.

Germany – legal artisanal mining is known to occur along the Rhine Valley but the amounts recovered are unknown. A nominal estimate has been included.

Ghana – gold produced by artisanal mining is purchased by a state-owned marketing organisation but official figures of the quantity vary depending on the source. They are also reported in publications produced by under the Extractive Industry Transparency Initiative (EITI). In the table below the following figures are included for artisanal production: 32 073 kg in 2015; 35 292 kg in 2016; 45 992 kg in 2017; 61 720 kg in 2018; and 49 398 kg in 2019.

Guinea – the figures in the table include reported figures for artisanal mining. However, actual artisanal production may be higher than those reported because it is difficult to distinguish the material derived from artisanal mining within Guinea from that moved across the border from Mali or other countries.

Ivory Coast – efforts are being made within Ivory Coast to rationalise artisanal mining as part of the EITI process. Reports suggest that it varies considerably from year to year and may range between 1000 kg and 10 000 kg per year. A conservative estimate of 3000 kg has been added to reported industrial scale mine output in 2015 and 4500 kg per year for 2016 to 2019.

Kenya – The reported figures shown are believed to include artisanal mining but in reality it could be much higher.

Liberia – official figures are believed to include both the industrial mine and artisanal production.

Madagascar – estimates of artisanal mining are in the order of 100 kg to 3000 kg per year.

Mali – the figures include an estimate of 5000 kg per year for artisanal mining for 2014 and 2015 and 6000 kg per year thereafter, but it is likely the real figure varies more than this from year to year.

Nigeria – Official reporting of artisanal gold production by the Ministry is low (160 kilograms in 2019). However imports of gold to other countries from Nigeria are reported to be much larger, which suggests the quantity of production may be higher and the estimates in the table reflect this. The EITI reports plans for formalising the artisanal mining sector and for the support of 10 000 artisanal miners in five regions of the federation.

Panama – artisanal mining is known to occur but no reliable estimates are available. A nominal estimate of 100 kg per year has been included.

Papua New Guinea – official estimates of "alluvial and small scale" mining are approximately 3500 to 4000 kg per year.

Rwanda – it is believed that the reported and estimated figures are actually gold that originated in Nigeria or other countries in the region but is not recorded in those countries.

Senegal – an estimate of 2100 kg has been added to each year for artisanal mining.

South Sudan – artisanal mining is known to occur but reliable estimates are difficult to obtain. It has been estimated as approximately 200 kg per year.

Tanzania – Artisanal mining is known to occur and in 2015 and 2016 was reported as approximately 30 kg per year.

Togo – the reported figures are exports of gold which is transiting through the country. It is believed the majority of this originates in Burkina Faso from artisanal mining but it is not recorded within the production figures for that country. Consequently it is recorded here for completeness. Some artisanal mining is also believed to occur in Togo.

Venezuela – artisanal mining is believed to be quite extensive and increasing. Estimates of quantities vary widely from less than 1000 kg up to 9000 kg per year. The Central Bank aims to purchase all the artisanally mined gold, however, actual output is believed to be larger than the reported figures and therefore higher estimates have been used.

Vietnam – artisanal mining is believed to be taking place at the site of a former industrial mine. No information is available to indicate likely scale.

Mine production of gold

kilograms

Country	2015	2016	2017	2018	2019
Armenia	2 805	* 3 730	* 4 270	4 908	5 825
Azerbaijan	2 229	1 895	3 667	3 476	3 712
Bulgaria	7 914	7 918	8 682	8 995	7 982
Cyprus	—	—	48	47	33
Finland	8 342	8 865	9 102	8 732	7 927
Georgia	* 3 100	* 3 600	* 3 000	4 299	* 4 000
Germany	—	—	—	—	* 10
Greece	510	86	1 324	1 454	1 164
North Macedonia	494	664	972	767	593
Poland	431	402	572	523	674
Romania	* 500	* 500	* 500	* 500	* 500
Russia	256 500	253 200	270 300	279 900	305 100
Serbia (a)	1 186	805	1 199	839	* 850
Slovakia	603	466	447	515	346
Spain	2 128	1 291	1 605	1 991	1 913
Sweden	6 028	6 463	7 858	7 866	7 972
Turkey	27 800	24 030	23 090	28 000	38 000
United Kingdom	—	(b) 6	—	—	* 50
Algeria	106	102	137	286	* 250
Benin	* 6	* 7	* 5	* 5	* 5
Botswana	757	833	913	1 105	942
Burkina Faso	36 540	38 520	46 436	52 898	51 500
Burundi	549	396	953	616	567
Cameroon	795	542	713	* 448	* 450
Central African Republic	15	33	118	142	162
Chad	* 10	* 10	* 10	* 10	* 10
Congo	* 150	* 150	* 150	* 150	* 150
Congo, Democratic Republic	* 38 000	* 37 100	* 37 100	* 43 800	* 43 000
Egypt	13 657	17 139	16 941	14 694	14 946
Equatorial Guinea	* 200	* 200	* 200	* 200	* 200
Eritrea	753	* 1 400	* 2 700	* 3 700	* 3 700
Eswatini (Swaziland)	—	—	—	12	6
Ethiopia (c)	9 370	8 573	5 390	3 495	* 2 800
Gabon	* 1 356	* 1 070	* 600	* 100	* 100
Ghana	112 402	114 488	133 303	149 067	142 380
Guinea	21 464	29 192	46 845	25 823	27 708
Ivory Coast	* 23 200	* 25 100	* 25 200	* 24 500	* 29 600
Kenya	300	200	503	472	395
Liberia	828	4 704	6 071	7 289	4 903
Madagascar	* 300	586	2 833	(d) 3 000	(d) 2 100
Mali	* 46 500	* 48 200	* 51 500	* 61 000	* 63 000
Mauritania	8 802	7 126	9 096	9 235	13 554
Morocco (a)	448	352	220	386	* 360
Mozambique	242	201	166	507	430
Namibia	6 285	6 756	7 469	6 632	7 016
Niger	1 220	999	914	6 207	1 200
Nigeria (d)	* 15 000	* 21 000	* 19 000	* 18 000	* 9 000
Rwanda (d)	* 2 000	* 4 900	* 8 800	* 18 100	* 11 400
Senegal	7 800	9 700	11 700	14 900	16 700
Sierra Leone	106	188	142	464	75
South Africa	144 515	142 077	136 833	117 150	105 185
South Sudan	* 200	* 200	* 200	* 200	* 200

Mine production of gold

kilograms

Country	2015	2016	2017	2018	2019
Sudan	82 400	93 400	107 300	93 600	* 93 600
Tanzania	43 293	45 155	43 489	39 304	48 408
Togo (d)	15 568	* 14 000	* 20 000	* 10 000	* 10 000
Uganda	13	11	4	12	* 5
Zambia (e)	4 238	4 610	4 373	4 044	4 522
Zimbabwe	20 023	22 747	23 929	35 054	29 428
Canada	162 504	163 888	171 111	194 155	182 783
Costa Rica	950	750	4 255	3 699	4 500
Dominican Republic	31 134	37 932	35 242	31 633	31 801
Guatemala	5 610	3 910	1 647	—	—
Honduras	2 736	2 607	2 596	2 148	1 760
Mexico	134 759	132 413	126 820	141 143	108 985
Nicaragua	7 612	8 391	7 367	7 703	9 190
Panama	* 100	* 100	* 100	* 100	1 869
USA	213 826	232 230	236 986	225 528	200 370
Argentina	60 960	56 648	60 956	58 397	53 092
Bolivia	22 208	21 876	28 726	31 599	42 040
Brazil	83 124	93 921	79 717	85 198	89 988
Chile	42 501	46 333	37 911	37 066	38 455
Colombia	59 638	63 157	43 158	35 905	37 476
Ecuador	7 723	6 761	6 368	8 212	* 8 000
France (French Guiana)	* 6 460	* 6 100	* 8 000	* 10 000	* 11 000
Guyana	14 029	22 167	20 334	19 069	19 963
Peru	146 823	153 006	151 964	140 211	128 413
Suriname	9 396	12 926	25 844	26 002	24 516
Uruguay (f)	1 480	993	1 062	465	—
Venezuela	* 5 000	* 5 000	* 8 100	* 9 100	* 9 000
Burma (g)	1 692	1 446	1 620	70	* 230
China (a)	450 053	453 490	426 142	401 119	380 230
India (g)	1 323	1 595	1 651	1 664	1 715
Indonesia	92 171	80 868	99 030	111 858	108 690
Iran (h)	2 358	4 537	7 100	* 7 000	* 7 000
Japan	7 699	6 455	6 369	6 453	6 312
Kazakhstan	63 614	74 737	85 339	100 299	103 063
Korea (Rep. of)	258	205	283	239	181
Korea, Dem. P.R. of	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Kyrgyzstan	17 600	21 000	29 100	27 700	31 000
Laos	6 893	6 729	5 988	5 579	5 207
Malaysia	4 732	2 249	2 124	2 978	3 151
Mongolia	20 828	9 331	19 849	20 655	16 251
Philippines	21 314	23 053	22 749	20 765	20 646
Saudi Arabia	5 089	7 010	10 333	11 831	12 258
Taiwan	2	—	4	4	6
Tajikistan	* 4 400	* 5 000	* 5 500	6 432	8 100
Thailand	3 305	4 250	—	—	—
Uzbekistan	* 88 000	* 89 000	* 89 900	92 716	* 93 000
Vietnam	579	604	557	* 600	* 600
Australia	277 372	290 767	292 022	313 028	325 711
Fiji	1 368	1 500	1 425	1 281	1 106
New Zealand	12 687	9 866	10 288	10 045	8 217
Papua New Guinea	57 640	61 952	65 246	135 124	74 386
World total	3 150 000	3 250 000	3 360 000	3 470 000	3 350 000

See notes on the following page.

Mine production of gold

Note(s)

- (1) In several countries substantial amounts of gold produced in small and/or artisanal operations are not recorded in the official statistics. Estimates have been added where possible but these have varying degrees of uncertainty.
- (2) In addition to the countries listed, Cambodia, El Salvador, Haiti, Malawi, Pakistan, Paraguay and Portugal may produce gold.

- (a) Metal production
 (b) Sales
 (c) Years ended 7 July of that stated
 (d) Exports
 (e) Contained in blister copper, refinery muds and electrolytic copper
 (f) Year ended 30 November of the year stated
 (g) Years ended 31 March following that stated
 (h) Years ended 20 March following that stated

Production of graphite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria (a)(b)	21 840	23 200	24 400	25 000	20 000
Germany	398	502	422	222	207
Norway	9 185	9 600	* 9 600	* 9 600	* 9 600
Russia	15 900	19 400	25 200	17 800	16 600
Sweden	113	—	—	—	—
Turkey	—	—	—	16 752	* 16 800
Ukraine	14 500	14 630	14 855	* 15 000	* 15 000
Madagascar	3 607	5 419	12 852	54 587	53 400
Mozambique	580	580	802	106 773	113 803
Namibia	—	—	2 216	3 456	—
Zimbabwe	6 362	5 622	1 577	174	* 100
Canada	* 18 000	* 16 000	14 000	11 000	11 000
Mexico	6 524	14 200	10 310	4 198	3 182
Brazil (c)	75 100	61 687	90 000	95 000	96 000
China (d)	* 725 000	* 625 000	* 625 000	* 693 000	* 700 000
India (a)(e)	135 528	122 438	33 649	39 370	32 936
Korea, Dem. P.R. of	* 80 000	* 50 000	* 140 000	* 40 000	* 40 000
Pakistan (f)	2 864	360	—	1 840	—
Sri Lanka	3 479	3 908	3 769	* 3 700	* 3 700
World total	1 100 000	1 000 000	1 000 000	1 100 000	1 100 000

Note(s)

- (1) This table includes all forms of amorphous and crystalline graphite but excludes synthetic material.

- (a) Crude
 (b) Sales
 (c) Including beneficiated and directly shipped material
 (d) Including flake graphite
 (e) Years ended 31 March following that stated
 (f) Years ended 30 June of that stated

Production of gypsum

tonnes (metric)

Country	2015	2016	2017	2018	2019
Albania	86 163	131 925	104 120	102 016	* 100 000
Armenia	19 400	14 800	14 300	20 400	22 900
Austria (a)	715 195	674 346	712 469	836 862	* 840 000
Azerbaijan	196 463	110 501	33 037	12 043	14 535
Bosnia & Herzegovina (a)	58 800	61 231	99 001	122 421	130 778
Bulgaria	108 600	60 900	88 000	* 88 000	* 88 000
Croatia	138 088	170 107	200 932	267 155	279 719
Cyprus	471 885	682 024	703 079	625 721	623 545
Czech Republic	11 000	10 000	7 000	8 000	10 000
France (a)(b)	1 807 978	1 734 975	1 873 581	2 836 329	2 054 084
Georgia	40 078	46 670	85 468	91 699	61 706
Germany (a)	4 200 000	3 970 000	4 450 000	4 550 000	4 850 000
Greece (a)	649 280	777 990	855 000	827 300	840 000
Hungary	—	—	1 564	1 280	* 1 200
Ireland, Republic of	* 250 000	* 250 000	* 200 000	* 200 000	* 200 000
Italy (a)	571 731	617 188	469 044	188 618	298 242
Latvia (a)	225 370	224 000	* 225 000	* 225 000	* 225 000
Moldova (c)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
North Macedonia (a)	172 525	202 582	217 491	230 029	267 181
Norway (a)(b)	77 403	82 386	87 891	89 655	102 100
Poland (a)	1 099 081	1 118 484	1 108 000	1 120 344	1 150 000
Portugal	309 966	255 026	152 059	232 921	209 076
Romania	888 746	754 009	813 520	799 810	878 546
Russia	* 4 400 000	* 4 400 000	* 4 000 000	* 3 800 000	* 3 800 000
Slovakia (a)	67 000	53 000	45 700	55 000	50 000
Spain	7 403 767	8 936 364	9 545 228	10 593 056	11 300 190
Switzerland	* 320 000	* 340 000	* 330 000	* 330 000	* 330 000
Turkey	8 638 715	10 124 221	10 223 112	10 896 475	* 10 896 000
Ukraine (a)	1 254 900	1 303 000	1 528 900	1 386 400	1 409 400
United Kingdom	* 1 800 000	* 1 600 000	* 1 300 000	* 1 400 000	* 1 600 000
Algeria	2 130 000	2 130 000	2 200 000	2 500 000	* 2 500 000
Angola	127 910	* 10 000	* 32 000	* 32 000	* 32 000
Egypt (a)(d)	744 160	686 610	* 650 000	* 650 000	* 650 000
Eritrea	* 17 000	* 17 000	* 18 000	* 18 000	* 18 000
Ethiopia (e)	115 623	89 520	85 236	253 164	* 250 000
Guinea	18 677	273 245	* 200 000	* 200 000	* 200 000
Kenya (a)	5 800	5 760	* 5 800	* 5 800	* 5 800
Libya	275 000	212 000	328 000	310 000	* 310 000
Madagascar	* 130	* 130	* 130	* 130	* 130
Mauritania	* 70 000	* 70 000	* 70 000	* 70 000	* 70 000
Morocco	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Niger	253	—	3 395	507	6 211
Nigeria	* 34 000	* 35 000	* 35 000	39 052	22 300
South Africa	232 878	266 811	317 990	313 909	277 102
Sudan	24 136	349 236	333 000	226 000	* 226 000
Tanzania	239 302	213 744	123 645	241 259	256 529
Tunisia	690 000	902 394	944 245	984 031	946 892
Uganda	—	—	60	* —	* —
Canada (a)	2 682 000	1 704 000	3 010 000	3 246 000	2 446 000
Cuba	90 900	73 900	85 400	99 900	66 300
Dominican Republic	204 687	123 553	94 595	82 896	137 143
Guatemala	111 351	130 616	135 154	132 897	140 901
Honduras	50 370	41 750	* 70 500	* 62 200	* 60 000
Jamaica	42 883	49 703	* 49 000	47 350	55 391
Mexico	7 101 612	7 682 807	7 609 704	8 546 723	* 8 500 000
Nicaragua	50 400	41 800	66 800	70 300	39 925
USA	18 800 000	19 800 000	20 700 000	21 600 000	21 500 000
Argentina	1 314 655	1 558 390	1 275 608	897 217	* 900 000
Bolivia	650	1 181	* 1 100	* 1 100	* 1 100
Brazil	3 161 856	3 471 328	3 400 000	3 200 000	* 3 200 000
Chile	860 075	934 033	1 157 466	909 191	977 397
Colombia	448 543	471 306	406 623	394 182	293 143
Paraguay	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Peru	438 025	257 423	286 657	458 479	254 382

Production of gypsum

tonnes (metric)

Country	2015	2016	2017	2018	2019
Afghanistan	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Bhutan	389 365	317 597	328 128	461 128	490 596
Burma	94 395	245 789	361 015	309 343	299 316
China	* 16 300 000	* 15 500 000	* 15 500 000	* 15 500 000	* 16 000 000
India (f)(g)	2 141 917	1 821 309	2 048 596	* 2 000 000	* 2 000 000
Iran (h)	12 292 267	16 376 605	13 476 148	13 852 269	* 13 852 000
Iraq	* 10 460 000	* 10 460 000	* 10 460 000	* 10 460 000	* 10 460 000
Israel	159 299	147 000	116 000	75 800	72 000
Japan	4 670 000	* 4 670 000	* 4 700 000	* 4 700 000	* 4 700 000
Jordan	* 880 000	* 880 000	* 880 000	* 880 000	* 880 000
Kazakhstan	113 400	137 400	133 200	121 100	81 200
Laos	989 516	469 436	463 039	618 783	606 387
Mongolia	67 300	56 000	* 56 000	* 56 000	* 56 000
Oman	6 049 400	5 482 900	8 664 700	9 666 700	10 663 200
Pakistan (d)	1 417 007	1 871 716	2 079 629	2 489 000	2 265 131
Saudi Arabia	2 780 000	3 000 000	3 150 000	3 307 000	* 3 300 000
Sri Lanka	1 120	1 996	2 213	* 2 200	* 2 200
Syria	* 25 000	* 10 000	* 10 000	* 10 000	* 10 000
Tajikistan	8 500	8 814	48 800	9 613	10 031
Thailand					
Gypsum	11 267 144	10 718 622	9 253 951	9 680 429	8 367 700
Anhydrite	876 024	1 240 724	1 392 693	1 517 228	1 419 587
Uzbekistan	* 80 000	* 80 000	* 80 000	* 80 000	* 80 000
Yemen, Republic of	* 30 000	* 12 000	* 15 000	* 17 000	* 22 000
Australia (d)	3 824 801	3 972 295	3 832 559	4 356 446	4 473 102
World total	151 900 000	158 700 000	161 100 000	168 600 000	168 000 000

Note(s)

(1) Some countries produce large quantities of synthetic gypsum. Where possible, this output is excluded from the table.

(2) In addition to the countries listed, Indonesia, Japan and Vietnam may also produce gypsum.

(a) Including anhydrite

(b) Sales

(c) Excluding output from the region east of the River Nistru and the Municipality of Bender

(d) Years ended 30 June of that stated

(e) Years ended 7 July of that stated

(f) Years ended 31 March following that stated

(g) Including selenite

(h) Years ended 20 March following that stated

Production of helium

million cubic metres

Country	2015	2016	2017	2018	2019
Poland	4	4	4	4	4
Russia	5	5	5	5	5
Algeria	10	10	14	14	* 14
USA	71	66	63	* 64	* 68
Qatar	* 49	* 50	* 45	* 45	* 51
Australia	* 4	* 4	* 4	* 4	* 4

Refinery production of indium

tonnes (metric)

Country	2015	2016	2017	2018	2019
Belgium	* 25	* 20	* 20	* 22	* 20
France	41	—	30	43	* 40
Italy	* 5	* 5	* 5	* 5	* 5
Russia	* 7	* 7	* 7	* 7	* 7
Canada	* 70	* 71	* 67	* 58	* 60
Brazil	* 5	* 5	* 5	* 5	* 5
Peru	9	10	10	11	* 10
China	* 520	* 510	478	483	534
Japan	70	70	70	70	* 70
Korea (Rep. of)	* 100	* 100	* 100	* 100	* 100

Note(s)

(1) In addition to the countries listed, Kazakhstan is believed to produce small quantities of indium.

Production of iodine

kilograms

Country	2015	2016	2017	2018	2019
Azerbaijan	246 700	207 600	198 400	185 100	190 300
Russia	13 987	2 952	7 844	7 895	3 112
USA	* 1 350 000	* 1 250 000	* 1 150 000	* 1 150 000	* 1 150 000
Chile	21 179 000	18 444 000	17 976 000	20 216 000	20 826 000
China	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Indonesia	* 45 000	* 35 000	* 34 000	* 38 000	* 40 000
Iran (a)	301 000	348 000	400 000	368 000	* 368 000
Japan	10 610 000	9 993 000	8 839 000	9 136 000	9 122 000
Turkmenistan	* 510 000	* 510 000	544 000	* 540 000	* 600 000
Uzbekistan	* 2 000	* 2 000	* 2 000	* 2 000	* 2 000
World total	34 900 000	31 400 000	29 800 000	32 200 000	32 900 000

Note(s)

(a) Years ended 20 March following that stated

Production of iron ore

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria (a)	2 783 327	2 777 260	2 981 737	2 803 536	* 2 800 000
Azerbaijan	127 600	25 500	—	—	—
Bosnia & Herzegovina	2 122 802	1 751 800	1 621 907	1 380 488	1 450 205
Germany (b)(c)	467 690	514 004	* 447 300	* 448 000	* 533 700
Norway	3 519 116	1 757 851	1 622 477	1 700 000	* 1 700 000
Russia	101 000 000	101 000 000	95 000 000	96 100 000	97 500 000
Sweden	29 861 000	31 843 000	31 763 000	35 774 000	38 913 000
Turkey	7 760 957	7 137 233	9 992 455	15 650 305	* 15 650 000
Ukraine	66 902 000	62 876 000	60 574 000	60 549 000	63 204 900
Algeria	944 000	826 000	* 830 000	* 830 000	* 830 000
Egypt (d)	508 915	565 229	565 000	* 500 000	* 560 000
Liberia	5 748 520	1 405 195	1 604 763	4 657 155	4 458 029
Malawi	—	3 800	5 000	2 563	3 000
Mauritania	11 607 000	13 268 061	11 813 000	10 710 305	12 196 491
Morocco	17 860	21 033	100 000	100 000	* 100 000
Namibia	4 000	8 478	2 450	3 824	15 646
Nigeria	* 4 000	1 550	* 1 550	1 582	160
Sierra Leone	5 247 688	6 576 576	6 531 460	968 585	722 305
South Africa (e)	73 220 891	66 455 868	74 643 475	74 263 738	72 430 288
Tunisia	284 600	210 697	197 965	175 853	186 485
Uganda	9 000	2 163	2 320	4 500	—
Canada (f)	46 673 000	48 999 000	51 836 000	52 358 000	59 013 000
Mexico	20 397 000	18 317 700	17 746 262	21 244 460	* 21 000 000
USA (f)(g)	46 100 000	41 800 000	47 900 000	49 500 000	46 800 000
Bolivia	24 453	22	38 330	71 662	* 56 500
Brazil	430 838 137	424 200 000	453 703 525	450 393 000	396 841 000
Chile	15 448 000	14 620 000	15 426 000	14 013 000	13 137 000
Colombia	902 322	715 786	712 868	575 542	666 561
Peru	7 320 807	7 663 124	8 806 452	9 533 871	10 120 007
Venezuela	11 715 475	7 306 000	4 601 000	2 800 000	4 000 000
Bhutan	43 202	28 065	32 974	37 843	36 864
China	1 381 288 000	1 280 893 000	1 229 373 000	763 374 000	844 356 000
India (h)	158 108 000	194 584 000	201 426 000	206 446 000	242 830 000
Indonesia	3 838 546	3 800 000	1 955 926	1 321 249	3 450 000
Iran (i)	58 485 696	65 001 032	75 843 536	93 365 420	* 93 365 000
Kazakhstan	37 269 700	35 793 500	38 728 200	41 876 500	45 210 800
Korea (Rep. of)	445 318	444 677	310 550	380 748	342 346
Korea, Dem. P.R. of	4 020 000	4 280 000	4 473 000	* 3 500 000	* 3 000 000
Laos	234 745	115 065	250 000	99 196	470 300
Malaysia (f)	1 625 253	1 914 232	3 919 632	3 353 634	4 160 462
Mongolia	6 173 400	4 936 200	7 694 700	6 225 400	8 572 200
Nepal (j)	—	—	772	396	183
Pakistan (d)	328 915	432 156	501 664	677 206	626 646
Philippines	107 119	17 088	—	—	—
Thailand	16 483	—	135	—	17 660
Vietnam	2 691 000	3 056 000	5 515 000	5 588 496	5 591 290
Australia	809 881 763	858 025 634	885 356 738	907 818 648	918 731 337
New Zealand	3 193 722	3 495 818	4 008 000	* 4 000 000	* 4 000 000
World total	3 359 000 000	3 319 000 000	3 360 000 000	2 945 000 000	3 040 000 000

Note(s)

- (a) Including micaceous iron oxide
- (b) Including manganiferous iron ore
- (c) Used as aggregate in the construction industry
- (d) Years ended 30 June of that stated
- (e) Including by-product magnetite
- (f) Including by-product iron ore
- (g) Including beneficiated and direct shipping ore
- (h) Years ended 31 March following that stated
- (i) Years ended 20 March following that stated
- (j) Years ended 15 July of that shown

Production of pig iron

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	5 805 000	5 642 000	6 335 000	5 269 000	5 750 000
Azerbaijan	1 150	2 533	315	—	702
Belgium	4 248 000	4 896 000	4 860 000	4 900 000	4 800 000
Bosnia & Herzegovina	845 462	778 123	738 476	664 291	744 778
Czech Republic	4 031 000	4 165 000	3 691 000	4 000 000	3 635 000
Finland	2 600 000	2 700 000	2 600 000	2 700 000	2 300 000
France	10 097 177	9 724 062	10 677 830	10 529 559	9 877 000
Germany	27 844 000	27 269 000	27 816 000	27 271 000	* 25 400 000
Hungary	1 247 000	863 000	1 311 000	1 355 000	1 151 000
Italy	(a) 5 051 000	(a) 6 044 000	(a) 5 052 000	(a) 4 836 000	4 606 000
Netherlands	6 050 000	6 092 000	6 145 000	6 150 000	5 900 000
Norway	58 700	43 000	74 100	78 800	74 200
Poland	4 826 492	4 679 616	5 159 128	4 787 696	4 241 941
Romania	1 938 502	1 922 001	1 766 958	1 979 200	2 107 300
Russia	53 700 000	51 900 000	52 100 000	51 800 000	51 200 000
Serbia	904 000	1 154 000	1 340 000	1 593 000	1 577 000
Slovakia	3 738 000	3 987 000	4 106 000	4 200 000	* 3 100 000
Spain	4 450 000	4 115 000	4 462 000	4 500 000	3 900 000
Sweden	2 865 000	3 079 000	3 111 000	2 877 000	3 172 000
Turkey	10 184 000	10 304 000	10 589 000	10 536 000	9 900 000
Ukraine	21 863 000	23 560 000	19 797 900	20 531 200	20 055 900
United Kingdom	8 773 500	6 142 400	5 996 500	5 587 900	5 621 700
Algeria	300 000	300 000	300 000	300 000	* 300 000
Egypt	2 451 000	2 618 000	4 700 000	5 800 000	4 400 000
Libya	449 000	698 852	561 956	611 763	880 470
South Africa	6 939 000	5 013 000	5 277 000	5 400 000	4 500 000
Canada	7 353 000	7 606 000	7 914 000	8 100 000	7 800 000
Mexico	10 074 000	9 782 000	10 256 000	10 401 000	* 10 010 000
Trinidad & Tobago	901 100	—	—	—	—
USA	25 435 000	22 293 000	22 395 000	24 058 000	* 22 247 000
Argentina	3 934 000	2 914 000	3 402 000	3 790 000	3 050 000
Brazil	32 292 000	29 896 000	32 392 000	32 765 000	30 901 000
Chile	644 000	677 000	670 000	661 000	556 000
Colombia	240 000	225 000	203 000	205 000	207 000
Paraguay	71 000	50 000	38 000	39 000	* 41 000
Peru	72 000	11 000	—	—	—
Venezuela	1 356 000	908 000	491 000	400 000	405 000
Bahrain	1 230 000	1 260 000	1 260 000	1 600 000	* 1 450 000
China	691 413 000	702 273 300	713 619 300	779 876 300	809 365 000
India	74 621 000	77 254 000	96 313 000	106 823 000	111 574 000
Indonesia	2 513 000	2 640 000	2 572 000	2 967 000	3 020 000
Iran	17 005 000	18 264 000	21 694 000	28 100 000	31 000 000
Japan	81 010 826	80 186 246	78 329 729	77 327 888	74 907 006
Kazakhstan	3 233 671	3 595 090	3 766 322	3 174 116	3 199 258
Korea (Rep. of)	47 639 000	46 336 000	47 100 000	47 124 000	47 521 000
Korea, Dem. P.R. of	* 250 000	* 250 000	* 250 000	* 200 000	* 150 000
Malaysia	1 434 000	1 178 000	952 000	1 230 000	4 467 000
Oman	1 509 000	1 439 000	1 526 000	1 500 000	1 750 000
Pakistan	* 163 000	—	—	—	—
Qatar	2 631 000	2 506 000	2 548 000	2 525 000	2 400 000
Saudi Arabia	5 800 000	5 119 000	4 812 000	5 000 000	4 700 000
Taiwan	14 370 000	14 890 000	14 361 000	14 841 000	14 510 000
United Arab Emirates	3 190 000	3 479 000	3 608 000	3 784 000	3 285 655
Vietnam	1 700 000	2 600 000	4 250 000	8 323 000	9 836 000
Australia	3 594 000	3 642 000	3 758 000	3 882 000	3 664 000
New Zealand	678 000	670 000	683 000	700 000	672 000
World total	1 228 000 000	1 230 000 000	1 268 000 000	1 358 000 000	1 382 000 000

Note(s)

(1) The data in this table include sponge iron and direct reduced iron (DRI) , where these have been separately identified.

(a) Includes ferro-manganese

Production of crude steel

tonnes (metric)

Country	2015	2016	2017	2018	2019
Albania	* 150 000	* 50 000	* —	* —	* —
Austria	7 687 000	7 438 000	8 135 000	6 885 000	7 424 000
Azerbaijan	302 015	345 340	387 258	381 617	326 418
Belarus	2 577 292	2 265 517	2 432 580	2 572 862	2 717 705
Belgium	7 257 000	7 687 000	7 842 000	7 980 000	7 760 000
Bosnia & Herzegovina	795 942	783 045	734 518	677 443	801 000
Bulgaria	543 100	527 300	652 400	666 100	565 900
Croatia	122 000	—	—	135 800	69 125
Czech Republic	5 261 591	5 305 000	4 553 000	4 966 000	4 600 000
Finland	3 988 000	4 102 000	4 003 634	4 100 000	3 511 000
France	14 984 045	14 412 574	15 504 683	15 387 355	14 451 000
Germany	42 674 000	42 081 000	43 297 000	42 435 000	39 667 000
Greece	1 067 000	1 199 000	1 359 000	1 467 000	1 350 000
Hungary	1 675 000	1 279 000	1 901 000	1 989 000	1 769 000
Italy	21 956 000	23 312 000	24 008 000	24 497 000	23 192 000
Latvia	* 190 000	* 4 000	* —	* —	* —
Luxembourg	2 127 000	2 175 000	2 172 000	2 228 000	2 119 000
Moldova (a)	443 000	126 000	455 000	497 000	392 000
Montenegro	36 602	26 246	27 638	26 552	24 262
Netherlands	6 995 000	6 917 000	6 781 000	6 813 000	6 657 000
North Macedonia	165 235	239 084	271 287	269 658	262 144
Norway	590 000	620 000	603 000	575 000	620 800
Poland	9 337 105	9 160 660	10 540 354	10 336 483	9 123 107
Portugal	2 030 000	2 010 000	2 076 000	2 215 000	2 033 000
Romania	3 423 421	3 369 582	3 442 786	3 529 286	3 421 199
Russia	69 400 000	69 600 000	72 968 168	74 144 495	73 740 141
Serbia	955 000	1 173 000	1 477 000	1 973 400	1 929 400
Slovakia	4 562 000	4 808 000	4 980 000	4 947 000	3 931 000
Slovenia	604 000	613 000	648 000	653 800	623 000
Spain	14 845 000	13 654 000	14 444 000	14 320 500	13 587 700
Sweden	4 557 100	4 816 800	4 926 500	4 655 100	4 721 100
Switzerland	1 586 020	1 498 021	1 569 963	1 561 826	* 1 500 000
Turkey	31 517 000	33 163 000	37 524 000	37 311 700	33 700 000
Ukraine	23 166 031	24 218 000	21 334 000	21 100 000	20 800 000
United Kingdom	10 906 700	7 634 900	7 491 300	7 267 700	7 218 100
Algeria	650 000	650 000	415 000	2 300 000	* 2 400 000
Congo, Democratic Republic	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Egypt	5 506 000	5 036 000	6 870 000	7 806 800	7 357 000
Ethiopia	* —	* 690	* 690	* 690	* 690
Ghana	* 25 000	* 25 000	* 25 000	* 25 000	* 25 000
Kenya	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Libya	352 000	491 500	421 648	396 342	606 153
Mauritania	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Morocco	516 000	520 000	550 000	520 000	500 000
Nigeria	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
South Africa	7 614 000	6 141 000	6 301 000	6 327 000	6 152 000
Tunisia	50 000	50 000	50 000	50 000	* 50 000
Uganda	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Zimbabwe	2 806	2 785	1 294	1 322	* 1 300
Canada	12 473 000	12 672 000	13 614 000	13 443 100	12 897 000
Cuba	223 441	206 260	211 448	225 000	* 230 000
Dominican Republic	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
El Salvador	124 000	100 000	96 000	99 000	102 000
Guatemala	403 000	314 000	294 000	300 000	* 306 000
Mexico	18 228 000	18 811 000	19 924 000	20 204 000	* 18 598 000
Trinidad & Tobago	266 500	—	—	—	—
USA	78 845 000	78 475 000	81 612 000	86 607 400	* 87 943 000
Argentina	5 027 900	4 126 500	4 624 200	5 161 700	* 4 722 000
Brazil	33 258 000	31 642 000	34 778 000	35 407 000	32 569 000
Chile	1 112 000	1 153 000	1 158 000	1 145 000	1 017 000
Colombia	1 358 000	1 272 000	1 253 000	1 219 000	1 150 000
Ecuador	720 000	576 000	561 000	583 000	* 607 000
Paraguay	48 000	35 000	24 000	25 000	* 25 000

Production of crude steel

tonnes (metric)

Country	2015	2016	2017	2018	2019
Peru	1 082 000	1 168 000	1 207 000	1 217 000	1 254 000
Uruguay	97 000	61 000	58 000	60 000	* 62 000
Venezuela	1 346 000	553 000	444 000	129 000	51 000
Burma	* 150 000	* 200 000	* 250 000	* 300 000	* 350 000
China	803 825 000	807 609 400	870 740 900	929 038 400	996 342 000
India (b)	89 790 000	97 443 000	102 338 000	110 920 000	103 600 000
Indonesia	4 854 200	4 745 908	5 195 000	6 183 000	7 783 000
Iran (c)	14 496 936	15 143 286	18 143 471	19 344 198	20 626 585
Israel	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Japan	105 134 378	104 775 329	104 661 087	104 318 836	99 284 114
Jordan	* 150 000	* 150 000	* 150 000	* 150 000	* 150 000
Kazakhstan	3 902 617	4 264 114	4 657 009	4 005 982	4 463 786
Korea (Rep. of)	69 670 000	68 575 000	71 080 000	72 464 000	71 411 000
Korea, Dem. P.R. of	* 1 250 000	* 1 250 000	* 1 250 000	* 1 250 000	* 1 250 000
Malaysia	3 783 572	3 781 668	3 772 057	4 110 000	* 4 500 000
Mongolia	* 45 000	* 50 000	* 50 000	* 50 000	* 50 000
Pakistan	* 2 892 000	* 3 553 000	* 4 966 000	* 4 719 000	* 3 300 000
Philippines	968 000	1 075 000	1 378 000	1 500 000	1 400 000
Qatar	2 594 000	2 521 000	2 645 000	2 575 000	2 600 000
Saudi Arabia	5 662 000	5 461 000	4 831 000	5 200 000	8 200 000
Singapore	501 000	520 000	596 000	618 000	766 000
Sri Lanka	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Syria	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Taiwan	20 815 000	20 858 000	21 370 000	22 290 000	21 322 000
Thailand	5 069 000	5 400 000	6 762 000	6 403 000	4 246 000
United Arab Emirates	3 006 000	3 149 000	3 309 000	3 247 500	3 326 600
Uzbekistan	643 000	654 000	680 000	646 000	666 000
Vietnam	5 647 000	7 811 000	11 473 000	15 471 000	17 469 000
Australia	4 935 300	5 160 489	5 335 000	6 035 000	5 916 000
New Zealand	793 000	577 000	657 000	651 800	667 000
World total	1 619 000 000	1 626 000 000	1 730 000 000	1 814 000 000	1 854 000 000

Note(s)

(1) Unless otherwise indicated, these figures include production from scrap.

(a) Production from the region east of the River Nistru

(b) Years ended 31 March following that stated

(c) Years ended 20 March following that stated

Production of ferro-alloys

tonnes (metric)

Country	2015	2016	2017	2018	2019
Albania					
Ferro-chrome	43 350	44 551	23 987	92 850	* 100 000
Armenia					
Ferro-molybdenum	5 576	6 526	6 588	7 279	7 712
Austria					
Ferro-molybdenum	4 000	4 000	4 000	4 000	4 000
Ferro-nickel	2 500	2 500	2 500	2 500	2 500
Ferro-vanadium	8 000	7 000	8 000	7 000	7 000
Bosnia & Herzegovina					
Ferro-alloys	18 716	28 138	30 473	31 460	31 911
Czech Republic					
Ferro-vanadium	* 6 200	* 6 300	* 6 600	* 6 400	* 6 700
Finland					
Ferro-chrome	457 000	469 000	415 000	497 000	505 000
France					
Ferro-manganese	126 000	119 000	95 400	* 90 000	* 85 000
Ferro-silico-manganese	65 100	58 200	58 400	* 55 000	* 55 000
Ferro-silicon	* 45 000	* 45 000	* 35 000	* 35 000	* 35 000
Silicon metal	120 000	80 000	108 000	* 100 000	* 100 000
Other ferro-alloys	* 60 000	* 50 000	* 80 000	* 50 000	* 70 000
Georgia					
Ferro-manganese	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Ferro-silico-manganese	217 289	244 228	289 765	335 013	284 688
Germany					
Ferro-chrome	* 17 000	* 17 000	* 17 000	* 16 500	* 16 000
Silicon metal	29 953	29 940	31 915	28 058	29 606
Other ferro-alloys	* 8 200	* 8 200	* 8 200	* 8 200	* 8 200
Greece					
Ferro-nickel	89 129	87 880	86 140	82 615	* 65 000
Iceland					
Ferro-silicon	121 556	128 019	116 811	116 889	120 255
Italy					
Ferro-silico-manganese	82 000	90 000	91 000	91 000	* 91 000
Kosovo					
Ferro-nickel	39 200	22 800	* 23 000	* 6 000	* 7 200
North Macedonia					
Ferro-nickel	17 699	10 603	7 175	10 100	15 202
Ferro-silicon	46 047	24 431	21	185	117
Norway					
Ferro-manganese	309 200	329 100	400 800	* 400 000	* 400 000
Ferro-silico-manganese	309 900	306 100	284 500	* 328 000	* 288 000
Ferro-silicon (a)	243 813	249 475	240 813	265 964	—
Silicon metal	* 150 000	* 150 000	* 150 000	* 150 000	* 150 000
Poland					
Ferro-manganese	—	—	66	—	—
Ferro-silicon	77 754	77 682	65 732	63 618	65 523
Other ferro-alloys	460	12 517	24 800	33 250	16 815
Russia					
Spiegeleisen	* 7 000	* 7 000	* 7 000	* 7 000	* 7 000
Ferro-chrome	363 286	268 439	434 452	332 261	384 089
Ferro-silico-chrome	* 4 200	* 4 200	* 4 200	* 4 200	* 4 200
Ferro-manganese	155 700	124 200	253 000	281 000	273 000
Ferro-silico-manganese	188 895	203 216	44 917	43 334	51 774
Ferro-molybdenum	4 660	4 881	4 726	* 4 700	* 4 700
Ferro-nickel	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Ferro-silicon	1 057 909	935 912	840 352	928 797	846 579
Ferro-vanadium	12 277	12 392	12 588	11 383	10 894
Silicon metal	* 48 000	* 48 000	* 48 000	* 48 000	* 48 000
Other ferro-alloys	* 34 000	* 34 000	* 34 000	* 34 000	* 34 000
Slovakia					
Ferro-manganese	24 500	35 000	41 300	32 300	26 200
Ferro-silico-manganese	27 100	35 700	40 100	37 200	49 900
Ferro-silicon	38 200	30 900	44 600	44 100	29 400
Other ferro-alloys	5 700	4 300	2 700	1 300	2 100

Production of ferro-alloys

tonnes (metric)

Country	2015	2016	2017	2018	2019
Spain					
Ferro-manganese	126 200	120 100	* 132 100	* 126 000	* 120 000
Ferro-silico-manganese	134 400	123 100	* 138 700	* 140 000	* 120 000
Ferro-silicon	* 80 000	* 80 000	* 95 000	* 95 000	* 90 000
Silicon metal	* 24 000	* 30 000	* 7 500	* 7 500	* 7 000
Sweden					
Ferro-chrome	82 616	81 102	114 101	106 486	120 000
Turkey					
Ferro-chrome	82 560	75 000	83 894	* 80 000	* 80 000
Ferro-silico-chrome	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Ukraine					
Ferro-manganese	100 209	184 310	211 124	155 869	172 508
Ferro-silico-manganese	750 181	876 756	875 031	912 300	858 708
Ferro-nickel	95 209	84 025	74 459	79 537	79 334
Ferro-silicon	114 826	126 297	118 371	97 084	* 97 000
Other ferro-alloys	19 360	106 244	87 094	100 764	* 100 000
Egypt					
Ferro-silicon (b)	54 767	60 477	* 60 500	* 60 500	* 60 500
Other ferro-alloys (b)	12 000	* 12 000	* 12 000	* 12 000	* 12 000
South Africa					
Ferro-alloys	4 467 526	4 022 966	4 058 305	4 081 452	3 806 766
Zimbabwe					
Ferro-chrome (a)	190 837	148 842	328 386	315 685	* 310 000
Canada					
Ferro-niobium	5 385	6 099	6 981	* 7 500	* 7 000
Ferro-silicon	* 38 000	* 38 000	* 40 000	* 36 000	* 36 000
Ferro-vanadium	1 000	* 1 000	* 1 000	* 1 500	* 1 500
Silicon metal	* 30 000	* 27 000	28 300	* 34 000	* 34 000
Dominican Republic					
Ferro-nickel	—	33 203	43 894	53 697	38 157
Mexico					
Ferro-manganese	67 919	84 529	90 010	95 349	72 937
Ferro-silico-manganese	139 363	134 251	148 142	151 991	154 209
USA					
Ferro-silicon & silicon metal	411 000	384 000	415 000	430 000	* 320 000
Argentina					
Ferro-silico-manganese	* 11 000	* 10 000	* 10 000	* 10 000	* 10 000
Ferro-silicon	* 11 000	* 11 000	* 11 000	* 11 000	* 11 000
Brazil					
Ferro-chrome	155 421	(c) 150 240	(c) 171 531	(c) 175 061	(c) 136 780
Ferro-silico-chrome	36 092
Ferro-silico-magnesium	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Ferro-manganese	129 000	124 000	149 000	168 000	151 000
Ferro-nickel (d)	21 286	44 538	43 800	42 310	45 543
Ferro-niobium	51 874	44 390	58 690	* 60 000	* 60 000
Ferro-silicon	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Silicon metal	150 000	110 000	110 000	190 000	* 190 000
Other ferro-alloys	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Chile					
Ferro-molybdenum	* 14 500	* 14 500	* 14 500	* 14 500	* 14 500
Colombia					
Ferro-nickel	104 773	105 976	116 016	* 111 000	* 111 000
Venezuela					
Ferro-manganese	* 12 000	* 12 000	* 12 000	* 6 000	* 6 000
Ferro-silico-manganese	* 14 000	* 14 000	* 14 000	* 7 000	* 7 000
Ferro-nickel	* 50 000	* 50 000	* 50 000	* 25 000	* 25 000
Ferro-silicon	* 80 000	* 80 000	* 80 000	* 40 000	* 40 000
Bahrain					
Ferro-silico-manganese	6 000	5 000	0	0	0
Bhutan					
Ferro-silicon	* 104 500	* 106 000	* 109 000	* 120 900	* 138 900
Burma					
Ferro-nickel (e)	65 466	64 462	62 367	32 786	* 46 000

Production of ferro-alloys

tonnes (metric)

Country	2015	2016	2017	2018	2019
China					
Ferro-alloys	36 664 000	35 588 000	32 887 000	31 234 000	36 577 000
Silicon metal	1 953 500	2 101 000	2 204 700	2 404 500	* 2 400 000
India					
Ferro-aluminium (e)	3 212	4 345	4 423	2 752	1 545
Ferro-chrome (e)	944 000	944 000	944 000	944 000	927 273
Ferro-silico-magnesium (e)	20 541	20 183	15 978	19 180	14 173
Ferro-manganese (e)	518 000	518 000	518 000	518 000	45 818
Ferro-silico-manganese (e)	269 920	300 625	311 326	345 291	320 939
Ferro-molybdenum (e)	1 459	1 603	1 205	1 003	540
Ferro-silicon (e)	90 000	90 000	90 000	90 000	7 636
Ferro-titanium (e)	198	291	281	118	126
Ferro-vanadium (e)	937	1 329	1 331	1 013	660
Indonesia					
Ferro-silico-manganese	* 8 000	* 8 000	* 6 000	* 5 000	* 4 000
Ferro-nickel	86 055	101 465	108 810	124 340	128 565
Iran					
Ferro-chrome (f)	* 8 000	* 8 000	* 8 000	* 8 000	* 8 000
Ferro-silicon (f)	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Japan					
Ferro-manganese	465 952	473 740	456 460	456 518	462 740
Ferro-nickel	396 969	333 448	312 324	339 844	337 790
Other ferro-alloys	73 651	77 453	79 809	73 094	74 015
Kazakhstan					
Ferro-chrome	1 414 476	1 525 222	1 640 299	1 772 508	1 899 941
Ferro-silico-chrome	74 609	94 467	110 497	* 110 500	* 110 500
Ferro-silico-manganese	164 189	135 885	123 977	137 710	123 528
Ferro-silicon	86 984	68 779	60 001	65 405	79 930
Other ferro-alloys	1 662	—	—	* —	* —
Korea (Rep. of)					
Ferro-manganese	* 355 000	* 355 000	* 355 000	* 355 000	* 355 000
Ferro-silico-manganese	* 196 000	* 196 000	* 196 000	* 196 000	* 196 000
Other ferro-alloys	* 4 200	* 4 200	* 4 200	* 4 200	* 4 200
Korea, Dem. P.R. of					
Ferro-alloys	* 16 000	* 23 000	* 30 000	* 41 000	* 46 000
Australia					
Ferro-manganese & ferro-silico-manganese (b)	278 000	222 000	245 000	275 000	257 000
Silicon metal	* 51 000	* 51 000	* 49 000	* 42 000	* 52 000
New Caledonia					
Ferro-nickel	228 484	261 420	269 961	260 206	247 746

Note(s)

(1) In addition to the countries listed, Bahrain and Chile also produce ferro-chrome.

(2) In addition to the countries listed, Saudi Arabia also produces ferro-manganese and ferro-silico-manganese.

(a) Sales

(b) Years ended 30 June of that stated

(c) Including ferro-silico-chrome

(d) Nickel content

(e) Years ended 31 March following that stated

(f) Years ended 20 March following that stated

Production of kaolin

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	12 894	13 558	* 13 500	* 13 500	16 176
Belgium	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Bosnia & Herzegovina	252 268	286 461	252 959	303 626	118 005
Bulgaria	334 100	330 200	321 800	* 322 000	* 322 000
Czech Republic (a)	648 000	648 000	676 000	653 000	629 000
France (b)	277 465	244 486	223 842	264 606	* 220 000
Germany (c)	1 100 000	1 023 000	1 109 000	1 004 000	1 046 604
Italy	* 180 000	* 180 000	* 180 000	* 180 000	* 180 000
Poland (d)	146 500	148 900	143 700	154 314	151 840
Portugal	251 582	283 571	307 982	374 029	304 677
Romania	* 31 000	* 31 000	* 31 000	* 31 000	* 31 000
Russia	786 600	1 064 800	1 593 000	1 593 000	1 530 000
Serbia	* 70 000	* 70 000	* 70 000	* 70 000	* 70 000
Slovakia	6 000	11 000	21 400	34 400	25 000
Spain (d)	391 960	347 258	475 074	474 462	450 000
Turkey	1 887 302	1 283 260	1 362 799	1 515 609	* 1 516 000
Ukraine	1 814 786	2 335 004	2 379 636	2 091 525	1 843 561
United Kingdom	* 1 014 000	* 940 000	* 970 000	* 996 000	* 715 000
Algeria	51 300	96 000	* 100 000	* 100 000	* 100 000
Burkina Faso	34	61	37	* 40	* 40
Egypt	232 351	* 232 000	* 230 000	* 230 000	* 230 000
Eritrea	* 200	* 200	* 200	* 200	* 200
Ethiopia (e)	* 4 600	* 4 600	* 5 000	* 10 000	* 10 000
Kenya	* 1 600	* 1 600	* 1 600	* 1 600	* 1 600
Madagascar	* 220	* 220	* 220	* 220	* 220
Nigeria	38 000	24 105	46 935	11 707	8 649
South Africa	20 339	21 141	31 295	23 724	27 827
Sudan	14 490	6 500	6 000	11 000	* 11 000
Tanzania	1 953	656	13 816	* 13 000	15 343
Uganda	34 697	45 909	55 317	17 281	10 448
Cuba	1 500	2 500	1 500	2 700	2 100
Guatemala	1 101	793	657	724	* 725
Mexico	366 049	452 070	325 864	898 246	* 900 000
USA (f)	5 810 000	5 290 000	5 560 000	5 530 000	* 5 500 000
Argentina	55 488	26 198	19 940	17 000	11 853
Brazil (a)	1 809 000	1 737 000	1 771 000	1 800 000	1 800 000
Chile	60 000	60 000	60 000	88 262	34 801
Colombia	5 028	8 510	164 077	70 799	85 201
Ecuador	64 486	4 110	548	—	—
Paraguay	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Peru	43 251	19 098	17 700	16 004	9 208
Venezuela	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
China	* 3 200 000	* 3 200 000	* 3 200 000	* 3 200 000	* 3 200 000
India (g)(h)	* 130 000	113 817	131 173	* 100 000	* 100 000
Indonesia	* 180 000	* 180 000	* 180 000	* 180 000	* 300 000
Iran (i)	1 169 366	1 141 502	2 036 670	1 759 079	* 1 759 000
Japan	* 12 000	* 12 000	* 12 000	* 12 000	* 12 000
Jordan	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Korea (Rep. of)	587 787	586 973	724 194	369 274	317 626
Malaysia	294 693	392 932	540 297	496 219	417 222
Oman	169 500	173 800	218 600	110 300	12 500
Pakistan (j)	18 956	20 726	28 710	19 483	15 978
Philippines	8 179	10 059	* 10 000	* 10 000	* 10 000
Saudi Arabia	111 000	196 000	206 000	216 000	* 216 000
Sri Lanka	2 238	1 767	1 941	* 2 000	* 2 000
Taiwan	732	4 035	1 665	20	500
Thailand (a)	* 175 000	105 343	102 659	96 666	80 776
Uzbekistan (g)	* 150 000	* 150 000	* 150 000	* 150 000	* 150 000
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000

Production of kaolin

tonnes (metric)

Country	2015	2016	2017	2018	2019
Australia (j)	254 103	244 157	217 673	208 088	127 602
New Zealand	13 659	61 650	50 424	51 369	50 569
World total	24 800 000	24 400 000	26 900 000	26 400 000	25 200 000

Note(s)

(1) In addition to the countries listed, Denmark is believed to produce kaolin.

- (a) Beneficiated
- (b) Sales
- (c) Washed and dried
- (d) Washed
- (e) Years ended 7 July of that stated
- (f) Sold or used by producers
- (g) Beneficiated; excludes directly used natural kaolin
- (h) Years ended 31 March following that stated
- (i) Years ended 20 March following that stated
- (j) Years ended 30 June of that stated

Mine production of lead

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Bosnia & Herzegovina	6 199	6 803	7 092	7 347	2 421
Bulgaria	16 456	19 688	16 099	14 723	17 097
Finland	—	—	—	—	937
Greece	14 500	14 300	12 600	15 376	14 827
Ireland, Republic of	31 300	19 582	17 083	16 712	16 100
Kosovo	5 541	6 530	5 142	4 694	3 990
Montenegro	2 200	3 600	3 100	3 100	3 500
North Macedonia	37 922	31 034	40 233	42 534	44 514
Poland	69 190	62 750	73 530	70 340	69 860
Portugal	3 077	4 126	5 164	18 397	27 852
Romania	* —	* —	900	1 200	* 200
Russia	180 000	217 000	210 000	220 000	* 220 000
Serbia	3 300	3 500	3 200	3 230	5 730
Slovakia	226	133	147	114	111
Spain	1 598	4 946	3 258	9 936	11 390
Sweden	79 354	75 830	71 112	64 751	68 635
Turkey	77 110	64 321	74 989	75 988	71 495
United Kingdom	(a)* 100	(a)* 100	(a)* 100	(a)* 100	(b)* 150
Congo, Democratic Republic	700	100	—	—	—
Morocco	32 138	29 617	38 009	30 339	* 29 000
Namibia	10 746	6 116	6 577	4 293	5 892
Nigeria	* 15 700	* 13 300	* 21 000	* 15 000	* 19 700
South Africa	34 573	39 344	48 150	35 118	42 936
Canada	3 809	12 020	20 477	17 874	22 824
Cuba	—	—	* 1 500	* 25 000	* 35 000
Guatemala	10 153	9 970	4 200	—	377
Honduras	9 800	3 985	6 761	9 893	12 308
Mexico	263 772	242 071	243 022	230 869	259 457
USA	360 000	336 000	310 000	271 000	266 000
Argentina	29 834	28 016	40 135	28 260	32 917
Bolivia	75 272	89 906	113 285	112 140	88 002
Brazil	9 441	9 015	6 157	7 277	6 000
Chile	2 979	1 110	1 562	712	7
Peru	315 525	314 422	306 794	289 123	308 116
Burma (c)	17 463	20 322	45 964	21 342	* 40 000
China	2 335 024	2 337 485	1 852 200	1 892 173	1 930 000
India (c)	143 707	150 964	173 789	207 067	206 510
Indonesia	* 5 500	* 5 300	* 7 900	* 11 400	* 10 800
Iran	43 785	47 000	48 000	48 000	* 50 000
Kazakhstan	40 700	70 500	111 200	86 400	55 600
Korea (Rep. of)	2 921	2 840	3 762	2 412	1 933
Korea, Dem. P.R. of	31 684	32 116	32 621	* 20 000	* 25 000
Laos	* 200	* 200	* 700	* 300	* 200
Mongolia	200	4 700	7 400	11 600	14 000
Nepal (d)	—	—	3 900	—	—
Pakistan	* 100	1 196	3 047	4 822	8 089
Tajikistan	40 100	57 000	* 61 100	* 52 600	* 65 000
Uzbekistan	* 20 000	* 30 000	* 40 000	* 50 000	* 50 000
Vietnam	* 1 600	* 700	* 3 800	* 12 100	* 10 400
Australia	653 488	441 338	395 190	446 571	509 198
World total	5 000 000	4 900 000	4 500 000	4 500 000	4 700 000

Note(s)

(a) By-product of Pennine fluorspar operations

(b) By-product of Pennine fluorspar operations and of gold mining in Northern Ireland

(c) Years ended 31 March following that stated

(d) Years ended 15 July of that shown

Production of refined lead

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	24 400	25 000	26 000	27 000	27 000
Belgium	130 000	142 100	136 000	138 106	138 618
Bosnia & Herzegovina	142	182	25	1	—
Bulgaria	96 889	100 817	103 105	102 808	102 473
Croatia	* 1 200	* 3 900	* 4 300	* 5 000	* 5 300
Czech Republic	* 44 000	* 43 000	* 43 000	* 43 000	* 43 000
Estonia	8 329	8 348	9 606	7 393	8 209
France	72 000	70 000	* 70 000	* 70 000	* 70 000
Germany	378 000	339 000	354 000	315 000	326 000
Greece	24 000	28 000	28 000	30 000	28 000
Ireland, Republic of	17 200	18 000	17 500	15 000	16 300
Italy	209 900	187 200	173 700	167 500	159 100
Netherlands	32 000	33 000	36 000	36 000	36 000
Poland	155 400	154 900	157 000	159 470	158 600
Portugal	8 000	8 000	10 000	9 000	10 000
Romania	20 000	17 000	24 000	21 000	20 000
Russia	116 000	130 000	140 000	140 000	141 000
Serbia	6 000	6 000	15 000	14 000	16 000
Slovakia	3 155	110	61	102	36
Slovenia	* 12 000	* 12 000	* 12 000	* 12 000	* 12 000
Spain	165 000	166 000	168 000	175 000	170 000
Sweden	71 293	74 367	78 241	75 784	72 327
Turkey	56 000	58 000	* 58 000	* 58 000	* 58 000
Ukraine	24 203	28 465	33 633	29 755	24 050
United Kingdom	357 200	331 000	330 000	313 000	300 000
Algeria	18 000	8 000	* 9 000	9 000	9 000
Egypt	* 24 000	* 25 000	* 26 000	* 26 000	* 28 000
Ghana (a)	3 048	1 823	1 150	1 200	1 000
Kenya	1 100	1 100	1 400	1 000	1 000
Morocco	* 14 000	* 11 000	* 8 000	* 8 000	* 8 000
Mozambique (a)	2 494	2 844	3 828	3 422	3 943
Nigeria	2 000	9 000	* 9 000	* 6 000	* 12 000
Senegal (a)	1 857	3 576	3 424	3 693	4 121
South Africa	* 52 000	* 54 000	* 56 000	* 56 000	* 56 000
Uganda	* 800	* 800	* 800	* 800	* 800
Zambia	* 4 000	* 5 000	* 4 000	* 4 000	* 5 000
Canada	268 863	274 226	274 061	260 956	260 267
Costa Rica	* 7 000	* 8 000	* 10 400	* 10 000	* 9 000
Dominican Republic	* 6 000	* 8 000	* 7 000	* 7 000	* 7 000
Guatemala	* 12 000	* 12 000	* 12 000	* 12 000	* 12 000
Honduras	—	—	4 700	* 5 000	* 5 000
Mexico	414 000	401 400	423 000	433 100	446 900
USA (b)	1 050 000	1 110 000	1 140 000	1 140 000	* 1 200 000
Argentina	42 000	38 300	40 000	39 900	28 000
Bolivia	459	41	1 100	* 100	1 200
Brazil	176 200	176 216	195 000	* 195 000	* 195 000
Chile	10 000	11 000	12 000	15 000	14 000
Colombia	* 42 000	* 42 000	* 43 000	* 44 000	* 44 000
Peru	* 5 000	* 10 000	* 15 000	* 15 000	* 15 000
Venezuela	* 20 000	* 16 000	* 16 000	* 9 000	* 8 000
Burma	* 800	* 6 100	* 12 100	* 7 300	* 14 800
China	4 421 600	4 603 884	4 726 200	4 942 947	5 797 108
India	503 000	528 000	573 000	626 000	599 000
Indonesia	* 46 000	* 48 000	* 46 000	* 54 000	* 54 000
Iran	78 000	86 000	90 000	85 000	80 000
Israel	26 000	24 128	25 261	28 700	24 090
Japan	* 232 000	* 240 000	* 239 000	* 240 000	* 237 000
Kazakhstan	120 108	134 144	147 328	148 570	127 316
Korea (Rep. of)	656 500	812 500	806 600	801 000	813 000
Korea, Dem. P.R. of	* 1 000	* 2 000	* 2 000	* 2 000	* 3 000
Lebanon	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Malaysia	25 300	28 000	30 000	30 000	35 000
Pakistan (c)	100	100	5 000	18 000	24 000
Philippines	28 000	14 000	10 000	10 000	10 000

Production of refined lead

tonnes (metric)

Country	2015	2016	2017	2018	2019
Saudi Arabia	* 37 000	* 60 000	* 72 000	* 68 000	* 68 000
Sri Lanka (a)	2 548	3 006	3 527	3 673	3 719
Taiwan	46 000	48 000	48 000	58 000	55 000
Thailand	86 000	86 000	88 000	85 000	82 000
United Arab Emirates	18 000	22 000	25 000	25 000	25 000
Vietnam	* 22 000	* 25 000	* 31 000	* 32 000	* 34 000
Australia	227 600	223 700	211 200	188 800	124 388
World total	10 800 000	11 200 000	11 500 000	11 700 000	12 500 000

Note(s)

(1) Figures relate to both primary and secondary refined lead and include the lead content of antimonial lead.

(a) Years ended 31 March following that stated

(b) Excluding lead content of primary antimonial lead

(c) Years ended 30 June of that stated

Production of lithium minerals

tonnes (metric)

Country	2015	2016	2017	2018	2019
Portugal					
Lepidolite	19 275	40 758	65 743	76 818	59 912
Namibia					
Lepidolite	—	—	—	30 000	—
Nigeria	—	—	—	1 567	133
Zimbabwe	44 000	48 000	51 000	70 000	65 000
Canada					
Spodumene	—	—	1 100	140 000	—
USA (a)	* 900	* 900	* 900	* 900	* 900
Argentina (b)(c)	20 073	30 877	31 060	34 712	34 278
Bolivia (b)	—	162	* 60	* 230	* 400
Brazil					
Spodumene	5 781	8 804	* 9 000	* 9 000	* 9 000
Chile (d)	56 375	78 182	81 378	97 323	112 607
China (a)	* 3 900	* 4 800	* 7 000	* 7 100	* 7 500
Australia					
Spodumene	439 514	522 181	1 706 619	1 965 944	1 616 764
World total (Li content)	36 400	46 800	93 700	111 600	97 500

Note(s)

(1) In addition to the countries listed, Russia has also produced lithium minerals in the past.

(a) Li content

(b) Carbonate

(c) Chloride

(d) Carbonate, hydroxide and chloride

Production of magnesite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	702 504	645 593	730 482	808 239	* 800 000
Finland	22 390	54 227	63 850	49 601	37 002
Greece	383 312	418 558	499 381	464 689	365 792
Netherlands (a)	257 510	265 857	282 551	349 000	292 000
Poland	96 000	77 920	101 920	102 110	91 490
Russia	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000
Slovakia	501 200	433 500	610 000	615 500	615 200
Spain	464 691	583 698	788 991	738 994	634 580
Turkey	3 335 258	3 258 445	1 694 071	1 958 847	* 2 000 000
South Africa	* 12 000	* 15 000	* 12 000	* 15 000	* 12 000
Canada (b)	* 150 000	* 150 000	* 150 000	* 150 000	* 150 000
Guatemala	* 20 000	23 137	16 298	4 745	* 4 700
Mexico	101 000	101 000	101 000	101 000	* 101 000
Brazil (c)	1 621 000	1 652 424	2 034 000	1 700 000	1 700 000
Colombia	2 883	1 175	1 913	1 039	1 847
China	* 18 400 000	* 18 600 000	* 19 000 000	* 18 500 000	* 19 000 000
India (d)	327 663	299 149	195 055	146 581	97 797
Iran (e)	151 881	155 916	154 860	169 953	* 170 000
Israel (f)	* 120 000	107 274	90 000	113 000	105 350
Korea, Dem. P.R. of	149 599	160 935	172 488	* 170 000	* 170 000
Nepal (g)	60	—	—	—	—
Pakistan (h)	24 627	35 228	19 656	23 596	41 477
Philippines	7 158	10 310	200	140	* 140
Saudi Arabia	294 000	286 200	302 100	325 950	* 315 000
Australia (h)	680 967	489 036	234 704	288 069	433 712
World total	30 400 000	30 400 000	29 900 000	29 400 000	29 700 000

Note(s)

(1) In addition to the countries listed, Bulgaria is believed to produce magnesite.

- (a) Chloride produced from solution mining
- (b) Officially described as magnesitic dolomite and brucite
- (c) Including beneficiated and directly shipped material
- (d) Years ended 31 March following that stated
- (e) Years ended 20 March following that stated
- (f) Magnesium chloride
- (g) Years ended 15 July of that stated
- (h) Years ended 30 June of that stated

Production of primary magnesium metal

tonnes (metric)

Country	2015	2016	2017	2018	2019
Russia	12 460	14 346	15 593	15 753	15 336
Turkey	* 100	* 3 750	* 4 000	* 4 500	* 4 500
USA	* 40 000	* 40 000	* 30 000	* 32 000	* 32 000
Brazil	15 000	15 000	15 000	15 000	15 000
China	859 258	872 768	904 600	848 079	969 000
Israel	29 708	22 548	23 000	21 100	* 23 900
Korea (Rep. of)	3 000	3 000	3 000	110	—
Malaysia	* 1 600	* 400	* 30	* —	—

Note(s)

- (1) In addition, substantial quantities of magnesium compounds are produced by, used and recycled within the process of titanium sponge production. It is believed this relates to the mineral carnallite and/or secondary magnesium chloride compounds.
- (2) Magnesium used within the process of titanium sponge production is not marketed as primary magnesium metal and is therefore excluded from this table. Annual quantities are likely to be approximately: Russia 50,000 t, Kazakhstan 10,000 t and Ukraine 8,000 t.

Production of manganese ore

tonnes (metric)

Country	2015	2016	2017	2018	2019
Bulgaria	46 500	41 700	2 000	—	—
Georgia (a)	* 370 000	* 370 000	* 370 000	349 354	* 350 000
Hungary	57 000	19 000	—	—	—
Romania	40 262	4 477	* 8 000	* 26 000	* 45 000
Turkey	142 809	46 867	77 895	85 334	* 85 000
Ukraine	1 477 200	1 328 271	1 758 172	1 845 156	1 854 240
Congo, Democratic Republic (b)	—	—	—	14 884	4 935
Egypt (c)	* —	* 10 000	* 500	* 20 000	* 30 000
Gabon	4 184 000	3 423 247	5 079 000	6 542 000	7 186 000
Ghana	1 562 769	2 018 254	3 003 580	4 551 754	5 383 014
Ivory Coast	294 904	200 278	474 879	791 911	1 200 000
Morocco	71 700	70 138	99 008	79 538	* 80 000
Namibia	38 360	16 896	27 915	23 045	32 145
South Africa	15 979 170	13 735 509	14 143 794	14 919 207	17 008 951
Sudan	* 9 000	9 800	* 4 000	* 4 000	* 4 000
Zambia	* 140 000	* 120 000	92 675	77 277	* 100 000
Mexico	592 728	549 589	561 612	556 220	534 044
Bolivia	—	—	—	* 550	* 17 100
Brazil	2 816 675	2 880 718	3 273 029	* 3 200 000	* 3 200 000
Peru	—	* 2 650	* 2 500	* 46 400	* 41 800
Burma	* 70 000	* 293 000	* 346 000	* 519 000	* 982 000
China	13 011 000	15 484 000	11 333 000	7 977 000	* 6 500 000
India (d)	2 166 947	2 395 134	2 599 815	2 820 227	2 956 175
Iran (e)	86 523	78 955	100 780	128 617	* 130 000
Kazakhstan	1 625 700	1 600 700	1 460 000	1 427 300	970 100
Malaysia	480 727	700 717	1 226 106	1 262 725	1 130 749
Oman	7 400	21 300	33 900	44 700	33 000
Thailand	9 000	2 750	8 020	4 000	4 800
Vietnam	20 700	13 400	50 000	68 194	76 106
Australia	6 281 497	5 327 566	6 172 266	7 212 118	6 649 432
World total	51 600 000	50 800 000	52 300 000	54 600 000	56 600 000

Note(s)

(1) In addition to the countries listed, Colombia, Cuba and Nigeria may produce manganese ore.

(a) Marketable

(b) Including beneficiated and direct shipping ore

(c) Years ended 30 June of that stated

(d) Years ended 31 March following that stated

(e) Years ended 20 March following that stated

Production of mercury

kilograms

Country	2015	2016	2017	2018	2019
Russia	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Morocco	* 5 000	* 5 000	* 10 000	* 3 000	* 2 000
Mexico (a)	* 250 000	* 240 000	* 140 000	* 160 000	* 32 000
USA	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Argentina	59 480	135 377	54 469	—	* —
Chile (b)	* 14 000	* 2 000	(a)* 11 000	(a)* —	(a)* —
China	2 801 000	3 482 000	3 573 000	2 317 000	2 232 000
Iran	14 000	—	—	—	* —
Kyrgyzstan	20 000	* 20 000	* 20 000	* 20 000	* 20 000
Tajikistan	96 000	* 100 000	* 100 000	100 000	90 600
World total	3 300 000	4 000 000	4 000 000	2 700 000	2 400 000

Note(s)

(1) Several countries are believed to have unrecorded production of mercury from copper electrowinning processes and by recovery from effluents.

(a) BGS estimates based on net exports

(b) From copper solvent extraction and electrowinning processes

Production of mica

tonnes (metric)

Country	2015	2016	2017	2018	2019
Finland	11 836	10 843	10 740	12 122	9 440
France (a)	* 20 700	* 19 600	* 19 200	* 15 000	* 19 000
Russia	4 823	4 823	5 219	4 465	* 4 500
Spain (a)	4 355	5 521	6 333	6 932	5 000
Turkey	44 637	14 531	204	5 732	* 6 000
Madagascar	16 634	22 311	* 35 000	* 49 000	* 34 000
South Africa	29	8	—	32	9
Canada	* 22 000	* 22 000	* 24 000	* 23 000	* 23 000
Mexico	145	145	145	408	* 400
USA (a)(b)	32 600	28 000	40 000	44 000	* 38 000
Argentina	583	564	189	120	* 120
Brazil	* 11 000	* 10 800	* 10 100	* 11 000	* 11 000
Colombia	240	247	159	239	252
China	* 85 000	* 95 000	* 100 000	* 100 000	* 100 000
India (c)	* 2 600	* 4 500	* 1 700	* 1 700	* 1 700
Iran (d)	* 5 600	1 500	4 500	1 500	* 1 500
Korea (Rep. of) (e)	17 405	12 934	14 576	16 559	23 433
Malaysia (f)	4 788	4 716	4 787	5 165	4 358
Sri Lanka	1 711	1 449	1 422	* 1 500	* 1 500
Taiwan	8 287	1 879	750	2 970	3 312
World total	295 000	261 000	279 000	301 000	287 000

Note(s)

(1) In addition to the countries listed, Egypt and Romania are believed to produce mica.

(a) Including mica recovered from mica schists and/or kaolin beneficiation

(b) Sold or used by producers

(c) Years ended 31 March following that stated

(d) Years ended 20 March following that stated

(e) Mainly sericite

(f) Sericite

Mine production of molybdenum

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Armenia	5 324	5 438	5 886	5 666	7 304
Norway	1	2	* 2	* 2	* 2
Poland	1 360	1 320	1 220	1 190	1 230
Russia	3 254	3 359	3 227	2 262	1 989
Turkey	3	—	—	—	—
Canada	1 983	2 883	4 941	5 036	3 955
Mexico	11 327	11 896	13 985	20 265	16 890
USA	47 400	36 200	40 700	41 400	43 500
Argentina	1 736	2 048	1 297	728	* 600
Brazil	* 200	* 200	* 200	* 200	* 200
Chile	52 398	55 834	62 454	60 248	53 541
Peru	20 153	25 757	28 141	28 034	30 441
China	135 270	129 357	117 104	113 308	104 435
Iran (a)	6 705	6 975	7 767	7 662	* 7 600
Kazakhstan	—	—	—	149	258
Mongolia	2 557	2 431	2 639	2 579	2 492
Uzbekistan	570	620	700	750	* 750
World total	290 000	284 000	290 000	289 000	275 000

Note(s)

(1) In addition to the countries listed, Australia, Georgia, India, Democratic P.R. of Korea, Romania and Tajikistan are believed to produce molybdenum.

(a) Years ended 20 March following that stated

Production of nepheline syenite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Norway	324 000	* 324 000	* 324 000	* 324 000	* 324 000
Russia					
Nepheline syenite	4 111 000	4 432 000	4 332 000	4 294 000	4 244 000
Nepheline concentrates	951 900	958 100	998 100	986 000	1 188 000
Canada	599 000	475 000	632 000	549 000	506 000

Mine production of nickel

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Albania	6 280	3 952	5 323	4 204	2 800
Finland (a)	9 383	20 654	34 641	43 572	38 530
Greece	20 800	21 800	19 100	17 900	13 700
Kosovo	7 418	4 265	7 120	4 791	3 314
Norway	300	300	200	300	200
Poland	840	770	720	700	720
Russia	261 000	223 000	221 000	218 000	226 000
Spain	7 213	—	—	—	—
Turkey	8 637	9 337	14 770	13 559	* 11 000
Botswana	16 789	14 273	—	—	—
Ivory Coast	—	—	400	12 300	9 100
Madagascar	47 271	42 105	35 474	33 183	33 733
Morocco	—	—	196	100	100
South Africa	56 689	48 994	48 383	43 236	43 443
Zambia	—	—	—	487	2 500
Zimbabwe	16 109	17 743	16 617	17 850	16 279
Canada	234 519	235 034	214 302	185 962	180 904
Cuba	50 000	48 000	49 300	49 000	45 300
Dominican Republic	—	9 913	15 632	19 214	28 450
Guatemala	46 298	36 939	54 517	65 710	* 55 000
USA	27 167	23 417	21 302	17 573	13 494
Brazil	182 900	134 600	83 200	65 300	55 700
Colombia	36 671	37 091	40 606	43 055	40 571
Venezuela	2 581	—	—	—	—
Burma (b)	22 913	22 562	21 828	11 475	* 16 000
China	101 403	100 219	102 300	108 200	104 674
Indonesia	* 129 600	* 204 000	* 355 000	* 651 600	* 1 036 200
Philippines	418 292	300 506	339 377	344 966	323 325
Vietnam	8 607	4 272	—	—	—
Australia	225 227	203 135	185 466	160 022	158 751
New Caledonia	193 199	204 207	215 382	216 225	209 549
Papua New Guinea	25 582	22 269	34 666	35 355	33 091
World total	2 164 000	1 993 000	2 137 000	2 384 000	2 702 000

Note(s)

(a) In addition some nickel is produced as a by-product of a talc operation. The amount is negligible

(b) Years ended 31 March of the year following that stated

Smelter/refinery production of nickel

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	700	700	* 700	* 700	* 700
Finland	60 709	85 424	85 780	92 591	90 151
France	6 500	4 600	2 300	3 700	6 900
Greece	17 113	17 071	16 781	15 720	11 974
Kosovo	* 11 700	* 5 400	* 7 500	* 5 500	* 3 600
North Macedonia	17 700	10 600	7 200	10 100	15 300
Norway	91 222	92 735	86 495	90 758	92 132
Poland	840	770	720	700	700
Russia	231 200	188 700	212 300	218 000	226 300
Ukraine	17 952	18 100	15 300	15 807	14 200
United Kingdom	38 804	45 194	38 052	41 220	39 632
Madagascar	47 271	42 105	35 474	33 183	33 733
South Africa	41 900	42 100	43 000	39 500	39 100
Canada	149 716	158 299	154 759	137 411	124 736
Cuba	14 700	15 000	15 800	17 100	14 800
Dominican Republic	—	9 961	15 363	18 794	13 355
Guatemala	10 826	8 688	12 416	14 688	20 323
Brazil	77 700	77 100	68 500	62 200	54 300
Colombia	36 671	37 091	40 606	43 055	40 571
Venezuela	2 581	—	—	—	—
Burma (a)	22 913	22 562	21 828	11 475	* 16 000
China	600 000	573 400	670 000	705 000	806 000
India	* 1 800	* 300	* 100	* 100	* 50
Indonesia	* 38 300	* 116 300	* 204 300	* 289 900	* 409 000
Japan	192 789	195 565	187 046	186 736	182 700
Korea (Rep. of)	34 882	44 857	43 861	43 386	41 067
Australia	152 978	120 520	108 500	114 517	106 470
New Caledonia	77 530	95 983	104 094	107 914	87 921
World total	1 997 000	2 029 000	2 199 000	2 320 000	2 492 000

Note(s)

(1) Data relate to refined nickel plus the nickel content of ferro-nickel, nickel oxide and nickel salts. It does not include nickel content of nickel hydroxide cake or nickel matte as these are further refined elsewhere.

(2) In addition to the countries listed, the USA produces some nickel as a refinery by-product.

(a) Years ending 31 March following that stated

Production of perlite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Armenia	—	4	78	8	—
Bulgaria	—	—	4 800	* 5 000	* 5 000
Georgia	* 20 000	* 20 000	* 20 000	22 577	* 23 000
Greece	890 670	921 410	932 950	790 412	719 000
Hungary	65 459	76 254	71 412	80 396	* 80 000
Italy	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Russia	* 45 000	* 45 000	* 45 000	* 45 000	* 45 000
Slovakia	25 000	19 000	47 510	36 000	32 000
Turkey	855 242	905 817	1 116 629	649 163	699 549
Ukraine	* 16 000	15 772	16 560	* 17 000	* 17 000
South Africa	* 1 100	* 1 000	* 1 000	* 1 000	* 1 000
Mexico	13 000	19 000	15 899	26 400	* 26 400
USA	501 000	521 000	570 000	* 510 000	* 520 000
Argentina	23 282	17 905	19 924	18 794	* 20 000
Chile	3 000	5 500	4 210	5 020	4 700
China	723 000	1 930 000	1 219 000	* 1 300 000	* 1 300 000
Iran (a)	395 182	524 823	368 601	194 216	* 194 000
Philippines	18 575	14 460	2 148	9 696	* 10 000
Thailand	17 200	18 740	5 850	5 600	15 000
Australia (b)	—	620	275	2 285	1 264

Note(s)

(1) In addition to the countries listed, Algeria, Canada, Djibouti, Iceland, Morocco and Mozambique are believed to produce perlite.

(a) Years ended 20 March following that stated

(b) Years ended 30 June of that stated

Production of crude petroleum

tonnes (metric)

Country	2015	2016	2017	2018	2019
Albania	1 279 253	1 055 764	954 768	910 683	1 005 000
Austria (a)	905 999	809 358	741 890	664 009	* 660 000
Azerbaijan	41 628 300	40 999 100	38 688 400	38 814 300	37 517 600
Belarus	1 645 000	1 645 000	1 650 000	1 670 000	1 690 000
Bulgaria	23 700	22 600	21 930	* 21 930	* 21 930
Croatia	613 281	676 752	682 339	682 128	657 553
Czech Republic	126 000	116 000	107 000	109 000	81 000
Denmark	7 710 265	6 949 005	6 740 075	5 635 500	4 979 725
Estonia (b)	2 002 415	1 875 685	2 537 881	2 376 608	1 658 406
France	6 571 195	6 620 977	6 023 595	5 824 468	5 724 905
Georgia	40 206	38 557	31 995	30 159	35 070
Germany	2 412 063	2 355 028	2 218 406	2 066 642	1 923 232
Greece	214 000	329 000	266 000	334 000	* 330 000
Hungary	633 090	774 000	705 274	818 151	* 820 000
Italy	5 450 000	3 740 000	4 140 000	4 670 000	4 270 000
Lithuania	73 540	63 468	55 829	46 029	39 572
Netherlands	2 004 000	1 558 000	1 464 000	1 478 000	1 111 000
Norway	95 797 000	98 466 000	96 830 000	91 080 000	85 386 000
Poland	927 737	876 546	996 049	1 010 332	972 564
Romania	3 847 897	3 685 575	3 538 345	3 485 778	3 440 000
Russia	533 000 000	548 000 000	547 000 000	556 000 000	561 000 000
Serbia	1 026 686	933 884	893 000	876 592	854 000
Slovakia	10 000	9 000	5 000	5 000	4 000
Slovenia	261	229	241	270	267
Spain	229 567	139 176	118 809	89 476	39 861
Turkey	* 2 700 000	2 336 391	2 638 251	4 213 619	3 074 859
Ukraine	2 531 000	2 272 000	2 098 200	2 293 000	2 453 600
United Kingdom	45 288 000	47 445 000	46 630 000	50 871 000	51 818 000
Algeria	67 200 000	68 400 000	66 600 000	65 300 000	64 300 000
Angola	88 200 000	85 800 000	81 600 000	74 100 000	69 100 000
Cameroon	4 896 300	4 716 700	3 880 800	3 518 600	3 639 400
Chad	5 800 000	6 100 000	5 200 000	6 100 000	6 700 000
Congo	11 910 000	9 970 000	12 250 000	16 870 000	16 340 000
Congo, Democratic Republic	1 132 052	1 075 779	1 034 393	1 152 050	1 120 345
Egypt	35 400 000	33 800 000	32 200 000	34 200 000	33 600 000
Equatorial Guinea	12 100 000	10 400 000	9 000 000	8 700 000	8 200 000
Gabon	11 920 000	11 480 000	10 500 000	9 650 000	10 300 000
Ghana	5 161 000	4 960 192	7 615 649	8 762 913	10 070 693
Ivory Coast	1 473 595	2 117 487	1 707 688	1 854 000	1 954 000
Libya	19 996 000	18 810 000	43 757 120	55 146 520	57 800 000
Mauritania	258 900	240 528	165 603	—	—
Morocco	5 000	5 000	4 000	5 000	* 5 000
Niger	697 000	647 220	547 650	448 074	393 309
Nigeria	105 700 000	91 300 000	94 500 000	96 400 000	101 400 000
Senegal	22 900	3 300	13 000	20 200	28 600
South Africa	70 979	38 796	31 145	23 781	—
South Sudan	7 300 000	5 800 000	6 000 000	6 300 000	6 800 000
Sudan	4 187 200	4 074 800	3 589 000	3 588 400	1 072 500
Tunisia	2 547 000	2 168 400	1 827 600	1 764 000	1 686 000
Barbados	34 239	31 944	32 046	29 963	* 30 000
Canada	192 100 000	192 500 000	208 800 000	227 400 000	232 900 000
Cuba	2 822 000	2 619 200	2 522 200	2 462 500	* 2 400 000
Guatemala	508 222	475 741	488 068	466 496	485 847
Mexico	133 953 966	127 077 904	115 135 269	107 070 000	99 212 000
Trinidad & Tobago	4 052 724	3 693 394	3 700 692	3 271 538	3 032 284
USA	588 640 750	566 486 345	600 507 895	700 573 565	780 610 700
Argentina	27 176 128	27 176 128	25 463 642	26 013 729	26 060 312
Bolivia	3 381 000	3 566 000	3 520 000	3 566 000	* 3 500 000
Brazil	130 716 876	135 223 698	141 362 424	139 356 470	149 550 768
Chile	254 649	213 032	176 065	158 795	159 977
Colombia	51 841 046	45 661 017	45 000 000	45 600 000	46 700 000
Ecuador	29 100 000	29 500 000	28 500 000	27 700 000	* 27 000 000
Peru	7 342 379	6 657 419	6 620 481	6 635 696	6 898 900
Suriname	998 387	961 341	959 752	964 639	971 528
Venezuela	135 400 000	120 100 000	107 600 000	75 600 000	46 600 000

Production of crude petroleum

tonnes (metric)

Country	2015	2016	2017	2018	2019
Afghanistan	* 3 700	* 2 700	* 900	* 900	* 900
Bahrain	3 157 000	3 065 000	2 807 000	2 769 000	3 177 000
Bangladesh	—	—	491 300	617 500	591 800
Brunei	6 238 268	5 960 395	5 555 999	5 478 268	5 966 407
Burma	708 000	619 000	579 000	486 000	432 000
China (a)	214 555 800	199 685 200	191 506 100	189 324 200	191 014 100
East Timor	1 585 000	1 007 000	800 000	603 000	* 819 000
India (c)	36 942 000	36 009 000	35 684 000	34 203 000	32 151 000
Indonesia	39 290 000	41 553 000	40 051 000	38 600 000	37 264 000
Iran	180 200 000	216 100 000	235 500 000	224 700 000	160 800 000
Iraq	195 600 000	217 600 000	222 400 000	227 000 000	234 200 000
Israel	65 383	92 837	65 488	75 292	85 563
Japan	544 000	501 000	512 000	455 000	477 000
Jordan	500	400	300	1 000	1 000
Kazakhstan	79 456 300	78 031 700	86 194 000	90 359 000	90 527 000
Kuwait (d)	148 100 000	152 600 000	146 000 000	146 800 000	144 000 000
Kyrgyzstan	107 100	145 300	173 200	200 000	236 400
Malaysia	31 240 000	31 860 000	31 527 000	31 192 900	28 852 200
Mongolia	1 206 231	1 134 773	1 048 707	878 762	946 818
Oman	48 854 229	49 816 773	48 331 377	48 719 782	48 346 316
Pakistan (e)	4 627 053	4 246 335	4 329 140	4 367 729	4 359 424
Philippines	845 024	844 200	755 013	173 507	106 520
Qatar	81 200 000	81 600 000	79 100 000	79 500 000	78 500 000
Saudi Arabia (d)	567 800 000	586 600 000	559 300 000	578 300 000	556 600 000
Syria	1 200 000	1 100 000	1 100 000	1 100 000	1 000 000
Taiwan	9 534	8 446	5 407	4 678	3 860
Tajikistan	24 600	25 134	23 400	23 939	23 293
Thailand	13 816 000	14 520 000	13 390 000	12 795 000	12 812 000
Turkmenistan	13 200 000	13 200 000	13 100 000	12 600 000	12 500 000
United Arab Emirates	176 100 000	182 400 000	176 200 000	176 700 000	180 200 000
Uzbekistan	2 700 000	2 600 000	2 800 000	2 900 000	2 800 000
Vietnam	18 746 000	17 230 000	15 518 000	13 969 000	13 090 000
Yemen, Republic of	2 600 000	1 600 000	2 400 000	2 800 000	4 200 000
Australia	17 203 247	16 112 627	15 495 471	16 206 743	21 683 614
New Zealand	1 860 880	1 572 040	1 399 820	1 085 650	1 088 430
Papua New Guinea	1 311 000	1 195 000	946 000	467 300	367 500
World total	4 344 000 000	4 358 000 000	4 375 000 000	4 482 000 000	4 461 000 000

Note(s)

(1) The figures shown in this table include natural gas liquids.

(a) Including oil from shale and coal

(b) From oil shale

(c) Years ended 31 March following that stated

(d) Including shares of production from the Neutral Zone

(e) Years ended 30 June of that stated

Production of natural gas

million cubic metres

Country	2015	2016	2017	2018	2019
Albania	35	92	102	92	* 80
Austria	1 183	1 253	1 742	969	* 950
Azerbaijan	19 236	18 718	18 186	19 207	24 527
Belarus	225	216	205	211	218
Bulgaria	85	80	65	* 65	* 65
Croatia	1 828	1 690	1 530	1 279	1 070
Czech Republic	200	169	171	179	146
Denmark	4 374	4 301	4 592	3 929	2 980
France	20	20	17	9	—
Georgia	11	7	9	10	9
Germany	9 323	8 608	7 932	6 888	6 699
Greece	4	9	8	12	* 12
Hungary	1 872	1 986	1 885	2 104	1 386
Ireland, Republic of	118	2 748	3 171	3 057	2 385
Italy	6 880	6 020	5 650	5 500	4 980
Netherlands	52 177	50 373	43 915	36 735	31 950
Norway	117 150	116 820	124 160	121 560	115 130
Poland	5 624	5 401	5 408	5 348	5 374
Romania	11 426	10 118	11 071	10 752	9 990
Russia	633 000	641 000	691 000	726 000	738 000
Serbia	626	595	548	506	477
Slovakia	104	87	88	80	75
Slovenia	3	5	8	15	7
Spain	12	8	13	93	131
Turkey	396	316	368	425	* 425
Ukraine	19 757	20 047	20 510	20 806	20 520
United Kingdom	40 466	41 607	42 094	37 847	34 555
Algeria	81 400	91 400	93 000	93 800	86 200
Angola	770	1 710	5 800	6 190	6 800
Cameroon	369	357	392	1 463	2 006
Congo	1 501	1 388	1 388	1 388	* 1 400
Egypt	42 600	40 300	48 800	58 600	64 900
Equatorial Guinea (a)	6 200	5 804	6 069	5 579	* 6 000
Gabon (a)	466	530	565	622	* 600
Ghana	24 200	24 200	30 800	* 30 000	* 30 000
Ivory Coast	2 234	2 396	2 155	1 935	* 1 900
Libya	11 000	9 400	8 600	8 300	9 400
Morocco	93	85	88	93	* 90
Mozambique	5 695	* 5 000	3 730	4 171	* 4 000
Nigeria	47 600	42 600	47 200	48 300	49 300
South Africa	1 333	820	749	624	668
Tanzania	36 568	47 704	51 054	58 951	* 60 000
Tunisia	2 479	2 213	2 089	1 961	1 795
Barbados	20	17	15	15	* 15
Canada	156 413	158 452	160 885	168 921	164 957
Cuba	1 245	1 185	1 051	970	951
Mexico	59 870	52 248	48 704	* 46 000	* 44 000
Trinidad & Tobago	39 164	34 091	34 391	36 647	36 769
USA (a)	765 953	752 557	773 738	870 912	961 282
Argentina	42 896	44 988	44 595	40 294	46 305
Bolivia	21 981	21 134	18 200	17 000	15 000
Brazil	24 862	25 337	28 663	26 687	27 358
Chile	1 064	1 175	1 200	1 221	1 339
Colombia	11 600	12 000	12 300	12 900	13 200
Ecuador	510	538	481	368	* 350
Peru	12 488	13 954	12 934	12 741	13 418
Venezuela	36 100	37 200	38 600	31 600	26 500
Afghanistan (b)	146	165	156	153	129
Bahrain	21 283	21 062	21 465	21 879	24 887
Bangladesh (c)	25 263	27 489	27 445	27 430	27 233
Brunei	12 452	12 025	12 290	11 851	12 140
Burma	19 545	18 971	18 644	16 028	18 800
China	134 610	136 865	148 035	160 159	176 174
East Timor	6 055	5 855	5 270	6 554	7 152

Production of natural gas

million cubic metres

Country	2015	2016	2017	2018	2019
India (d)	32 249	31 897	32 649	32 057	30 472
Indonesia	75 770	74 704	72 295	72 601	67 184
Iran	183 500	199 300	219 500	238 300	244 200
Iraq	7 300	9 900	10 100	10 600	10 800
Israel	8 438	9 390	9 570	10 480	10 500
Japan	2 734	2 754	3 008	2 707	2 524
Jordan	122	116	102	93	* 110
Kazakhstan	45 256	46 677	52 921	55 453	56 435
Kuwait (e)	16 100	16 400	17 400	15 000	18 400
Kyrgyzstan	32	29	26	27	24
Malaysia	63 380	67 510	70 251	66 171	68 433
Oman	31 093	31 742	30 463	34 640	36 484
Pakistan (c)	41 511	41 958	41 684	41 318	40 684
Philippines	3 471	3 977	3 923	4 380	4 382
Qatar	175 200	177 000	175 700	175 500	178 100
Saudi Arabia (e)	99 200	105 300	109 300	112 100	113 600
Syria	4 100	3 500	3 400	3 600	3 700
Taiwan	374	322	266	198	167
Tajikistan	4	3	2	1	1
Thailand	39 559	39 273	37 925	37 393	38 047
Turkmenistan	65 900	63 200	58 700	61 500	63 200
United Arab Emirates	58 700	60 300	62 400	61 400	62 500
Uzbekistan	53 600	53 100	53 400	57 200	56 300
Vietnam	10 660	10 610	9 866	10 010	10 210
Yemen, Republic of	2 900	500	500	600	600
Australia	76 791	97 328	113 805	130 987	154 485
New Zealand	4 606	4 763	4 761	4 161	4 420
Papua New Guinea	9 795	10 455	11 018	9 809	11 204
World total	3 697 000	3 748 000	3 901 000	4 084 000	4 232 000

Note(s)

(1) So far as possible the figures in this table exclude flared or reinjected gas.

(a) Dry gas

(b) Years ended 20 March following that stated

(c) Years ended 30 June of that stated

(d) Years ended 31 March following that stated

(e) Including one-half of the output of the Neutral Zone

Production of phosphate rock

tonnes (metric)

Country	2015	2016	2017	2018	2019
Finland	956 564	939 531	978 613	989 073	994 572
Russia	11 500 000	12 300 000	13 200 000	13 600 000	13 800 000
Turkey	713 230	772 500	—	—	—
Algeria	1 288 900	1 274 000	1 112 000	1 204 100	1 338 400
Burkina Faso	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Egypt (a)	3 427 000	2 556 000	1 276 000	* 1 300 000	* 1 300 000
Malawi	12 400	2 500	1 000	1 594	1 753
Mali	31 000	37 236	41 000	* 46 000	* 46 000
Morocco	26 264 000	26 900 000	32 800 000	37 600 000	35 300 000
Senegal					
Phosphate rock	1 062 000	1 609 000	1 385 000	1 782 000	1 748 000
Aluminium phosphate (b)	* 800 000	* 1 000 000	* 1 000 000	917 200	643 900
South Africa	1 852 348	1 696 533	2 079 294	2 058 274	1 825 719
Tanzania	* 23 000	23 658	1 351	—	—
Togo	1 150 194	850 076	732 503	930 857	703 573
Tunisia	3 228 311	3 663 613	4 422 100	2 802 000	4 108 800
Zimbabwe	6 200	6 500	9 000	* 6 000	* 9 000
Mexico	1 929 439	3 294 266	2 307 180	829 835	* 830 000
USA	27 400 000	27 100 000	27 900 000	25 700 000	23 300 000
Brazil (c)	5 600 000	5 850 000	6 033 000	5 740 000	5 300 000
Chile					
Phosphate rock	16 141	1 604	—	—	—
Guano	3 408	4 601	4 238	4 154	3 405
Colombia	95 483	84 125	63 483	52 945	77 907
Peru	11 161 636	10 561 111	8 450 379	10 308 276	11 091 502
Venezuela	26 324	* 25 000	68 062	* 70 000	* 70 000
China	142 039 000	144 398 000	123 132 000	96 326 000	93 324 000
Christmas Island (a) (d) (e)	671 000	770 000	644 000	643 000	486 000
India (f)	1 571 973	1 124 440	1 515 645	1 284 580	1 441 633
Iran (g)	85 066	64 805	52 600	86 579	* 86 600
Iraq	* 140 000	* 140 000	* 140 000	* 140 000	* 140 000
Israel	3 427 469	3 591 200	2 637 440	3 028 800	2 649 800
Jordan	8 335 993	7 991 157	8 687 581	8 022 393	9 223 346
Kazakhstan	* 1 830 000	* 1 830 000	* 1 830 000	* 1 830 000	* 1 830 000
Laos					
Guano	—	181 000	435 000	—	635
Pakistan (a)	109 874	115 140	61 677	68 541	83 044
Philippines					
Phosphate rock	5 437	8 019	159	1 236	* 1 500
Guano	495	670	* 700	1 500	* 1 500
Saudi Arabia	2 002 000	5 400 000	5 800 000	6 090 000	* 6 200 000
Sri Lanka	52 518	38 848	42 435	46 530	47 438
Syria	750 000	* —	* —	* 100 000	* 2 000 000
Thailand	* 500	* 500	8 000	—	—
Uzbekistan	* 700 000	* 700 000	* 700 000	* 700 000	* 700 000
Vietnam	2 923 400	3 142 500	4 588 000	4 332 216	4 651 627
Australia (a)	1 027 622	1 037 265	942 373	850 987	720 615
Nauru (d)	94 021	114 350	126 000	61 042	81 500
World total	264 000 000	271 000 000	255 000 000	230 000 000	226 000 000

Note(s)

(1) In addition to the countries listed, Indonesia and Nigeria are believed to produce phosphate rock

(a) Years ended 30 June of that stated

(b) Including lime phosphates

(c) Including beneficiated and directly shipped material

(d) Exports

(e) Including phosphate dust

(f) Years ended 31 March following that stated

(g) Years ended 20 March following that stated

Mine production of platinum group metals

kilograms (metal content)

Country	2015	2016	2017	2018	2019
Finland					
Platinum	992	1 154	1 418	1 576	953
Palladium	784	883	1 021	1 157	699
Poland					
Platinum	40	50	* 11	8	* 8
Palladium	20	30	* 7	* 7	* 7
Russia					
Platinum	(a) 20 800	20 500	22 100	20 200	21 500
Palladium	(a) 75 500	78 300	86 300	85 300	86 600
Other platinum metals (a)	2 500	2 600	2 400	2 100	1 835
Serbia					
Platinum	2	3	3	* 6	* 6
Palladium	22	23	50	* 55	* 55
Botswana					
Platinum	31	—	—	—	—
Palladium	156	—	—	—	—
Ethiopia					
Platinum (b)	* 5	* 5	* 5	1	* 1
South Africa					
Platinum	139 125	133 241	131 247	137 053	132 989
Palladium	82 691	76 273	80 134	80 629	80 684
Other platinum metals	53 699	54 139	48 895	52 964	54 395
Zimbabwe					
Platinum	12 564	15 110	14 257	14 703	13 856
Palladium	10 055	12 222	11 822	12 094	11 639
Other platinum metals	2 612	3 093	3 005	3 076	2 800
Canada					
Platinum	* 11 900	* 11 300	* 9 800	* 11 000	* 10 300
Palladium	* 20 800	* 19 700	* 17 100	* 19 200	* 17 900
Other platinum metals	* 1 400	* 1 300	* 1 100	* 1 300	* 1 200
USA					
Platinum	3 670	3 890	3 980	4 160	* 3 600
Palladium	12 532	13 070	13 600	14 300	* 12 000
Other platinum metals	96	103	* 100	* 100	* 100
Colombia	861	917	567	270	176
China					
Platinum	2 300	2 900	2 500	2 500	* 2 500
Palladium	1 200	1 400	1 400	1 300	* 1 300
Australia	533	762	765	541	483
World total	457 000	453 000	454 000	466 000	457 000

Note(s)

- (1) Wherever possible, figures relate to quantities of platinum group metals thought to be recovered from ores originating in the country stated.
- (2) Figures for metal production are only given for countries where recovery is thought to be based predominantly on domestic materials or on imported materials which have not been recorded as mine production elsewhere in the table.
- (3) In addition to the production listed, concentrates produced in Spain, and possibly other countries, are believed to be processed in China to recover platinum group metals.

- (a) Sales from mine production and stocks
(b) Years ending 7 July of that stated

Production of potash

tonnes (K₂O content)

Country	2015	2016	2017	2018	2019
Belarus	6 467 878	6 180 050	7 101 799	7 346 096	7 348 293
Germany					
Potassic salts	3 109 903	2 694 126	2 963 561	2 754 085	2 615 284
Russia					
Chloride	6 954 000	6 588 000	7 320 000	7 015 000	6 771 000
Spain					
Chloride	667 959	667 224	557 469	603 812	519 644
United Kingdom					
Chloride	594 000	432 000	216 000	210 000	—
Polyhalite	200 000	200 000	500 000	400 000	635 000
Canada					
Chloride	11 506 000	10 208 000	12 624 000	13 944 000	12 851 000
USA					
Potassic salts	740 000	510 000	480 000	520 000	* 510 000
Brazil					
Chloride	481 270	500 917	306 000	201 200	200 000
Chile					
Chloride	1 118 864	1 237 447	1 197 105	988 512	681 697
China	* 5 710 000	* 5 780 000	* 5 510 000	* 5 450 000	* 5 450 000
Israel					
Chloride	950 077	2 306 675	2 479 000	2 344 600	2 057 078
Jordan	1 436 600	1 222 100	1 415 200	1 486 000	1 516 500
Laos	411 452	320 257	469 172	554 103	462 738
World total	40 300 000	38 800 000	43 100 000	43 800 000	41 600 000

Production of rare earth oxides

tonnes (metric)

Country	2015	2016	2017	2018	2019
Russia	2 312	3 063	2 500	2 596	2 620
USA	3 540	—	—	10 800	* 15 600
Burma	* 400	* 4 500	* 20 000	* 34 000	* 29 000
China (a)	* 139 000	* 140 000	* 140 000	* 180 000	* 180 000
India (b)	956	2 265	2 724	4 215	4 200
Malaysia	365	1 221	196	1 012	71
Vietnam	* 250	* 220	* 200	* 920	* 900
Australia (c)	8 799	12 631	16 003	17 754	19 737

Note(s)

- (1) All the figures in this table are either reported as rare earth oxides or are calculated to rare earth oxide equivalent.
 - (2) Prior to the 2005-2009 edition of this book, a table for the production of 'rare earth minerals' was included rather than the current 'rare earth oxides'. Users should exercise caution when comparing statistics over longer time periods.
 - (3) Although rare earth minerals are believed to be extracted in other countries, there is insufficient evidence to estimate the quantities of contained oxides.
 - (4) Where possible, data are shown against the country where the mineral is mined.
- (a) Includes production from iron ore extraction, bastnasite concentrates and ion absorption clays
 (b) Years ending 31 March following that stated
 (c) Years ending 30 June of that stated

Production of rhenium

tonnes (metric)

Country	2015	2016	2017	2018	2019
Poland	9	9	11	9	8
Russia	* 2	* 2	* 2	* 2	* 2
USA	8	8	8	8	* 8
Chile	* 26	* 27	* 27	* 27	* 27
China	* 3	* 3	* 3	* 3	* 3
Kazakhstan	* 1	* 1	* 1	* 1	* 1
Uzbekistan	* 0	* 0	* 0	* 0	* 0

Production of salt

tonnes (metric)

Country	2015	2016	2017	2018	2019
Albania					
Sea salt	* 47 000	* 47 000	* 47 000	* 47 000	* 47 000
Armenia	27 392	32 250	32 551	22 583	24 975
Austria					
Rock salt	248	244	251	53	* 50
Salt in brine	985 357	1 044 926	1 113 728	1 178 500	* 1 180 000
Azerbaijan	4 743	4 690	4 985	4 208	4 526
Belarus	2 055 047	2 476 493	2 628 985	2 904 097	2 517 590
Bosnia & Herzegovina	869 750	966 177	1 029 302	1 063 457	1 069 210
Bulgaria	3 100 000	3 300 000	3 400 000	* 3 400 000	* 3 400 000
Croatia	51 877	39 836	52 938	50 825	47 793
Denmark	* 580 000	* 580 000	* 580 000	* 580 000	* 580 000
France	4 266 053	5 185 000	4 663 569	4 532 085	4 364 736
Germany					
Rock salt	6 027 873	5 634 339	6 793 883	7 185 794	7 374 654
Brine salt	2 286 769	2 278 304	2 679 189	2 609 664	1 748 844
Salt in brine	8 132 675	8 324 054	8 961 916	8 711 720	9 153 686
Greece (a)	121 537	158 020	* 160 000	* 160 000	* 160 000
Italy					
Rock salt & brine salt	3 030 687	2 550 849	2 283 406	1 514 829	1 538 072
Malta	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Montenegro					
Sea salt	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Netherlands	6 700 000	6 625 000	6 935 000	6 744 000	5 914 000
Poland					
Rock salt	639 735	698 607	984 000	853 210	912 000
Brine salt	2 797 703	2 964 690	2 989 000	2 928 781	2 929 000
Other salt	487 189	499 506	446 000	497 354	361 000
Portugal					
Rock salt	30 008	6 092	7 800	6 201	—
Sea salt	117 282	105 972	114 531	94 624	107 506
Romania	2 092 932	2 128 156	2 290 060	* 2 300 000	* 2 000 000
Russia	723 000	769 000	* 770 000	* 770 000	* 770 000
Serbia	13 202	9 149	* 9 000	* 9 000	* 9 000
Slovenia	2 191	2 417	2 335	2 018	1 437
Spain					
Rock salt	3 032 409	3 253 372	2 869 661	3 199 559	3 084 140
Sea salt	1 402 672	1 199 669	1 168 121	1 194 812	1 000 000
Other salt	154 464	99 815	97 844	117 872	110 156
Switzerland	476 941	447 216	448 509	530 414	477 000
Turkey	6 257 320	5 328 256	6 673 242	6 298 705	* 6 600 000
Ukraine	2 136 500	1 783 530	1 815 684	2 191 619	2 092 795
United Kingdom	* 4 000 000	3 898 987	2 361 707	3 430 266	2 254 046

Production of salt

tonnes (metric)

Country	2015	2016	2017	2018	2019
Algeria					
Brine salt & sea salt	175 000	157 400	* 160 000	* 160 000	* 160 000
Angola	47 845	* 93 000	* 101 000	110 000	* 110 000
Botswana	404 295	399 837	369 613	367 988	383 779
Djibouti	* 500	* 500	* 830 000	* 2 500 000	* 2 500 000
Egypt (b)	1 609 000	1 402 000	* 1 750 000	* 1 800 000	* 1 800 000
Eritrea	* 300 000	* 310 000	* 320 000	* 320 000	* 320 000
Ethiopia (c)	79 605	29 634	438 192	* 122 850	* 125 000
Ghana	* 250 000	* 250 000	* 250 000	* 350 000	* 350 000
Guinea	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Kenya (d)	21 201	23 423	43 245	28 841	30 600
Libya	* 30 000	* 30 000	* 40 000	* 50 000	* 50 000
Madagascar	* 120 000	* 130 000	* 130 000	* 120 000	* 120 000
Mauritania	* 700	* 700	* 700	* 700	* 700
Mauritius (a)	1 800	500	500	500	* 500
Morocco	555 760	634 662	659 263	691 637	* 692 000
Mozambique (a)	* 160 000	* 170 000	* 170 000	* 170 000	* 170 000
Namibia	732 980	835 539	808 952	833 193	906 517
Senegal	265 700	263 200	265 000	245 700	286 100
South Africa	520 070	488 984	503 935	476 107	510 499
Sudan	20 136	223 397	235 000	267 000	* 267 000
Tanzania	92 158	145 718	100 017	36 392	99 510
Tunisia	1 280 000	1 346 026	1 403 537	2 116 972	2 039 781
Bahamas (e)	962 486	308 007	349 710	854 223	* 850 000
Bonaire (a)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Canada					
Rock salt	13 312 076	9 272 371	10 378 614	9 675 013	10 986 492
Other salt (f)	974 035	979 790	1 045 010	1 016 444	955 790
Cuba	284 900	248 000	246 300	192 700	210 400
Dominican Republic	12 328	* 12 000	* 13 000	* 25 000	—
El Salvador (a)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Guatemala (a)	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Honduras	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Jamaica	* 14 000	* 14 000	* 14 000	* 14 000	* 14 000
Mexico	9 718 027	9 785 053	9 570 779	10 852 583	8 667 883
Nicaragua (a)	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Panama (a)	23 576	23 754	18 862	17 490	27 721
USA					
Rock salt (g)	20 400 000	17 900 000	16 500 000	* 17 101 000	* 17 518 000
Salt in brine (g)	16 900 000	16 900 000	15 600 000	* 16 168 000	* 16 562 000
Evaporated salt (g)	7 780 000	6 950 000	7 460 000	* 7 732 000	* 7 920 000
Argentina	1 400 777	1 812 285	1 461 065	1 406 020	* 1 406 000
Bolivia	2 216	4 534	3 358	5 373	* 5 100
Brazil					
Rock salt	1 476 015	1 410 314	* 1 500 000	* 1 500 000	* 1 500 000
Sea salt	6 200 000	6 100 000	* 6 000 000	* 6 000 000	* 6 000 000
Chile	11 831 116	8 139 914	7 440 741	10 012 105	10 476 823
Colombia					
Rock salt	334 804	354 791	336 373	339 503	347 183
Sea salt	95 652	176 021	165 126	51 720	—
Ecuador	* 75 000	* 75 000	* 75 000	* 75 000	* 75 000
Peru	1 471 131	1 450 415	1 481 398	1 509 564	1 266 347
Venezuela (a)	* 350 000	* 350 000	* 350 000	* 300 000	* 300 000
Afghanistan (h)	97 560	56 928	75 579	47 944	114 245
Bangladesh (e)	1 463 117	1 477 157	1 495 512	1 513 022	1 564 037
Burma	133 815	212 041	158 499	189 146	15 813
Cambodia (a)(i)	175 172	143 145	33 058	* 20 000	* 30 000
China	66 655 400	66 201 000	66 541 700	63 636 100	62 708 000
India					
Sea salt (j)	21 516 900	23 454 700	23 854 600	25 127 300	* 25 100 000
Other salt (j)	6 126 800	5 736 900	5 094 800	4 906 300	* 4 900 000
Indonesia	2 840 000	144 000	1 100 000	2 700 000	* 2 300 000
Iran (h)	2 813 780	2 796 224	3 024 621	2 768 733	* 2 750 000
Iraq	* 182 000	* 182 000	* 182 000	* 182 000	* 182 000
Israel (a)	333 317	389 236	514 100	376 800	301 100

Production of salt

tonnes (metric)

Country	2015	2016	2017	2018	2019
Japan (j)	938 000	928 000	926 000	929 000	903 000
Jordan	* 8 000	* 8 000	* 8 000	* 8 000	* 8 000
Kazakhstan	608 627	730 283	803 794	885 715	1 012 098
Korea (Rep. of)	342 844	323 470	308 844	282 590	261 970
Korea, Dem. P.R. of	* 500 000	* 500 000	* 500 000	* 500 000	* 500 000
Kuwait	64 289	66 664	58 000	* 58 000	* 58 000
Laos	1 733	118	6 697	—	10 079
Lebanon (a)	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Mongolia	1 686	478	860	997	533
Oman	12 600	4 500	18 000	11 500	15 000
Pakistan					
Rock salt (e)	2 797 506	3 552 948	3 534 075	3 653 746	3 796 634
Other (e) (d)	292 953	254 089	209 076	234 598	256 830
Philippines (a)	* 993 000	* 993 000	* 993 000	* 993 000	* 993 000
Saudi Arabia					
Rock salt & brine salt	2 000 000	2 400 000	2 520 000	2 646 000	* 2 600 000
Sri Lanka	63 250	150 357	116 912	68 834	57 291
Syria	* 5 000	* 2 500	* 2 500	* 2 500	* 2 500
Taiwan	78 301	77 276	77 054	78 539	76 255
Tajikistan	35 704	33 055	35 516	15 670	20 207
Thailand					
Rock salt	1 385 911	1 333 675	1 497 223	1 487 364	1 580 390
Turkmenistan	* 230 000	* 230 000	* 230 000	* 230 000	* 230 000
Uzbekistan	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Vietnam	1 061 000	982 000	648 500	996 513	912 884
Yemen, Republic of	* 75 000	* 75 000	* 75 000	* 100 000	* 100 000
Australia (e)	12 324 493	11 514 481	11 280 859	13 582 811	12 489 275
New Zealand	101 000	101 678	60 000	50 000	75 000
World total	289 900 000	277 400 000	279 800 000	289 800 000	284 600 000

Note(s)

- (1) This table does not include production of refined salt.
(2) Salt is known to be produced in many countries for which statistics are not available.

- (a) Sea salt
(b) Exports
(c) Years ended 7 July of that stated
(d) Lake salt
(e) Years ended 30 June of that stated
(f) Including salt in brine
(g) Sold or used by producers
(h) Years ended 20 March following that stated
(i) Seasons beginning in November and ending in May of the year stated.
(j) Years ended 31 March following that stated

Production of refined selenium

tonnes (metric)

Country	2015	2016	2017	2018	2019
Armenia	* 20	* 20	* 20	* 20	* 20
Belgium	* 200	* 200	* 200	* 200	* 200
Finland	93	104	100	109	115
Germany (a)	* 790	* 790	* 790	* 790	* 790
Poland	87	82	74	66	76
Russia	143	197	194	176	184
Serbia	15	18	* 18	* 18	* 18
Sweden	* 20	* 20	* 20	* 90	* 50
Canada	154	176	49	85	57
Mexico	99	121	112	107	127
USA	* 90	* 122	* 116	* 152	* 144
Chile	* 50	* —	* 100	* 110	* 90
Peru	40	45	45	45	* 45
China	720	750	930	1 150	1 358
Japan	772	753	792	750	* 770
Kazakhstan	* 130	* 130	* 130	* 130	* 130
Philippines	* 70	* 70	* 70	* 70	* 70
Uzbekistan	* 20	* 20	* 20	* 20	* 20

Note(s)

(1) In addition to the countries listed, Australia, Iran, the Republic of Korea and Zimbabwe are believed to produce refined selenium.

(a) Includes selenium produced from imported material

Production of sillimanite minerals

tonnes (metric)

Country	2015	2016	2017	2018	2019
France					
Andalusite (a)	* 68 000	* 58 000	* 68 000	* 65 000	* 68 000
Madagascar	1 900	1 800	4 200	* 0	* 0
South Africa					
Andalusite	* 190 000	* 180 000	* 200 000	* 200 000	* 190 000
USA					
Kyanite (b)	109 000	79 700	91 300	89 200	* 90 000
India					
Kyanite (c)	2 901	3 253	7 818	4 889	2 899
Sillimanite (c)	69 942	68 131	81 638	69 033	12 931
Nepal					
Kyanite (d)	7	1	2	0	0

Note(s)

(1) A number of other countries produce sillimanite minerals but details of output are not reported.

(2) In addition to the countries listed above as producing sillimanite minerals, synthetic mullite is believed to be produced in Brazil, Germany and Hungary.

(3) Production capacity for synthetic mullite also exists in China, India, Japan, the USA and the United Kingdom but output is believed to be zero.

(a) May include other sillimanite minerals

(b) Including related minerals

(c) Years ended 31 March following that stated

(d) Years ending 15 July of that stated

Mine production of silver

kilograms (metal content)

Country	2015	2016	2017	2018	2019
Armenia	14 344	* 16 000	* 19 000	* 15 000	* 20 000
Azerbaijan	890	5 136	8 076	8 943	8 160
Bulgaria	37 955	52 526	53 053	41 315	35 145
Cyprus	—	—	99	180	97
Finland	13 051	16 348	13 654	12 849	40 461
Georgia	* 18 000	* 20 000	* 21 000	20 042	* 1 000
Greece	28 100	29 300	34 200	34 900	43 800
Ireland, Republic of	3 770	1 080	1 340	1 160	1 578
North Macedonia	17 700	14 000	12 775	12 694	11 707
Poland	1 407 000	1 482 000	1 490 000	1 471 000	1 455 000
Portugal	41 337	38 631	40 186	55 706	53 063
Romania	* 18 000	* 18 000	* 18 000	* 18 000	* 18 000
Russia (a)	1 580 100	1 493 000	1 373 000	1 400 100	1 361 100
Serbia (a)	7 500	11 300	12 300	9 000	* 12 000
Slovakia	532	391	410	345	295
Spain	27 300	17 600	98 600	87 780	77 501
Sweden	479 686	498 686	467 500	443 624	419 926
Turkey	190 550	376 640	151 490	197 320	99 500
United Kingdom	—	(b) 14	—	—	* 130
Algeria	* 20	* 20	* 20	* 100	* 100
Botswana	2 801	—	—	—	—
Burkina Faso	* 5 500	* 5 800	* 7 000	* 8 000	* 7 700
Congo, Democratic Republic	2 401	800	3 400	* 3 400	* 3 400
Eritrea	38 910	13 219	(b) 1 192	31 000	44 836
Ethiopia (c)	* 1 000	745	* 1 000	* 1 000	* 1 000
Ghana	* 4 000	* 4 000	2 800	10 200	* 10 000
Ivory Coast	587	549	493	137	—
Mali	2 608	2 005	* 2 100	* 2 600	* 2 700
Morocco	216 383	237 418	239 416	190 500	231 400
Namibia	11 555	4 702	7 451	3 602	6 221
Niger	119	239	100	64	31
Senegal	540	500	700	940	900
South Africa	51 900	55 600	62 536	46 467	55 903
Sudan	* 1 000	* 1 000	* 2 000	* 2 000	* 2 000
Tanzania	15 569	17 984	10 911	12 041	12 550
Zambia	—	—	—	93	7 212
Canada	383 807	385 134	389 568	404 000	410 000
Dominican Republic	95 705	121 748	151 756	166 499	108 685
Guatemala	862 814	837 815	336 944	—	—
Honduras	34 369	17 600	21 784	31 181	43 582
Mexico	5 955 151	5 408 521	5 815 034	7 243 245	5 840 000
Nicaragua	18 576	21 382	15 419	11 263	17 362
Panama	—	—	—	—	35 217
USA	1 090 000	1 150 000	1 030 000	934 000	971 000
Argentina	1 175 246	1 055 700	997 961	1 023 768	* 1 000 000
Bolivia	1 306 977	1 356 620	1 222 371	1 191 024	1 153 110
Brazil	44 142	48 793	41 900	49 600	* 50 000
Chile	1 504 271	1 501 436	1 318 582	1 370 237	1 309 321
Colombia	11 602	11 866	12 076	16 684	12 706
Ecuador	2 521	934	68	192	200
Peru	4 101 568	4 375 337	4 417 987	4 160 162	3 860 306
China	3 421 355	3 496 003	3 601 800	3 421 355	3 443 128
India (d)	426 443	460 811	557 691	679 376	481 967
Indonesia	151 934	185 234	331 644	335 491	484 900
Iran	48 400	* 50 000	—	—	* —
Japan	4 616	5 076	3 408	3 596	3 467
Kazakhstan	1 308 926	1 186 511	1 060 662	969 347	1 022 126
Korea (Rep. of)	4 600	6 579	8 863	7 090	5 245
Korea, Dem. P.R. of	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Kyrgyzstan	17 200	15 500	14 200	13 600	14 500
Laos	51 763	51 302	42 840	37 464	34 443
Malaysia	945	1 075	1 404	1 542	686
Mongolia	48 989	79 480	72 440	64 800	69 432
Philippines	29 952	35 186	31 748	29 782	31 267

Mine production of silver

kilograms (metal content)

Country	2015	2016	2017	2018	2019
Saudi Arabia	4 500	4 710	5 069	5 322	* 5 600
Tajikistan	2 700	3 200	6 600	9 500	11 100
Thailand	26 438	26 430	—	—	—
Uzbekistan	* 230 000	* 230 000	232 300	223 900	* 260 000
Australia	1 430 298	1 418 219	1 120 175	1 254 480	1 325 089
Fiji	354	354	350	358	692
New Zealand	12 498	7 960	8 022	6 332	4 060
Papua New Guinea	44 588	90 498	69 330	104 004	157 927
World total	28 144 000	28 132 000	27 146 000	27 961 000	26 261 000

Note(s)

- (a) Smelter and/or refinery production
- (b) Sales
- (c) Years ended 7 July of that stated
- (d) Years ended 31 March following that stated

Production of natural sodium carbonate

tonnes (metric)

Country	2015	2016	2017	2018	2019
Turkey	1 854 290	1 976 880	3 274 416	3 400 000	* 3 500 000
Botswana	243 369	280 457	226 667	297 237	269 119
Ethiopia (a)	6 878	4 177	6 785	18 105	* 18 000
Kenya	319 761	301 719	311 000	339 025	230 355
USA	11 600 000	11 800 000	12 000 000	11 900 000	* 12 000 000

Note(s)

- (a) Years ended 7 July of that stated

Production of strontium minerals

tonnes (metric)

Country	2015	2016	2017	2018	2019
Spain	116 765	85 599	99 663	90 506	162 327
Mexico	79 022	33 230	40 699	35 489	39 215
Argentina (a)	5 000	5 000	5 000	* 700	* 700
China	53 200	65 300	53 700	* 50 000	* 50 000
Iran (b)	36 760	196 689	94 610	94 200	* 94 200

Note(s)

- (1) In addition to the countries listed, Germany is believed to produce strontium minerals.

- (a) May contain unbeneficiated material
- (b) Years ended 20 March following that stated

Production of sulphur and pyrites

tonnes (sulphur content)

Country	2015	2016	2017	2018	2019
Austria					
Recovered (a)	* 44 000	* 44 000	* 44 000	* 44 000	* 44 000
Belarus					
Recovered (a)	72 038	59 920	64 184	72 718	65 043
Belgium					
Recovered (a) (b)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Bosnia & Herzegovina					
Recovered	4 138	4 563	4 887	3 702	* 3 700
Bulgaria					
Recovered (b)	429 070	387 070	490 272	463 393	414 503
Recovered (a)	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Croatia					
Recovered (a)	17 540	21 690	24 168	23 406	12 640
Czech Republic					
Recovered (a)	* 35 000	* 32 000	* 29 000	* 30 000	* 22 000
Denmark					
Recovered (a)	4 447	6 144	4 004	4 194	3 554
Finland					
Pyrites	353 000	206 000	291 000	271 000	233 000
Recovered (b)	348 640	349 471	345 762	343 377	327 300
Recovered (a)	* 130 000	* 130 000	* 130 000	* 130 000	* 120 000
France					
Recovered (a)	* 370 000	* 370 000	* 370 000	* 370 000	* 370 000
Recovered (c)	* 78 000	* 78 000	* 78 000	54 592	* 55 000
Germany					
Recovered (a)	627 797	577 684	537 882	419 597	460 000
Recovered (c)	383 894	351 865	328 247	254 400	280 660
Greece					
Recovered (a)	154 990	190 000	326 100	* 330 000	* 330 000
Hungary					
Recovered (a)	* 54 000	* 54 000	* 54 000	* 54 000	* 54 000
Italy (d)	740 000	550 000	511 000	550 000	* 550 000
Lithuania					
Recovered (a)	84 001	94 522	93 969	93 958	86 041
Netherlands					
Recovered (b)	* 107 000	* 112 000	* 86 000	* 96 000	* 86 000
Recovered (a)	* 515 000	* 530 000	* 520 000	* 520 000	* 520 000
Norway					
Recovered (b)	76 384	74 277	63 974	69 998	72 900
Recovered (a)	* 22 000	* 22 000	* 22 000	* 22 000	* 22 000
Poland					
Frasch	627 600	620 500	663 000	617 370	568 240
Recovered (b)	* 280 000	* 280 000	* 280 000	* 280 000	* 280 000
Recovered (a)	23 820	24 500	23 000	23 770	25 200
Portugal					
Recovered	* 21 000	* 21 000	* 21 000	* 21 000	* 21 000
Romania					
Recovered	* 46 000	* 44 000	* 42 000	* 42 000	* 42 000
Russia					
Pyrites	* 71 000	* 71 000	* 71 000	* 71 000	* 71 000
Recovered (a)	* 6 400 000	* 6 600 000	* 6 600 000	* 6 700 000	* 6 700 000
Recovered (c)	* 954 000	* 954 000	* 954 000	* 954 000	* 954 000
Sulphur ore	110 155	94 418	96 316	83 707	57 427
Serbia					
Recovered (b)	* 29 400	* 29 400	* 29 400	* 29 400	* 29 400
Slovakia					
Recovered (b)	* 4 900	* 4 900	* 4 900	* 4 900	* 4 900
Recovered (a)	* 85 300	* 85 300	* 85 300	* 85 300	* 85 300
Spain					
Recovered (b)	* 539 000	* 539 000	* 539 000	* 539 000	* 539 000
Recovered (a)	* 515 000	* 515 000	* 515 000	* 515 000	* 515 000
Sweden					
Recovered (b)	192 499	187 264	190 014	200 122	178 401
Recovered (a)	95 172	86 312	91 018	86 967	50 021

Production of sulphur and pyrites

tonnes (sulphur content)

Country	2015	2016	2017	2018	2019
Turkey					
Pyrites	22 271	61	31 482	9 142	* 9 000
Recovered (a) (c)	* 72 900	* 72 900	* 72 900	* 72 900	* 72 900
Sulphur ore	823	—	5 285	900	* 900
United Kingdom					
Recovered (a)	135 000	133 000	133 000	129 000	130 000
Algeria					
Recovered (a)	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Egypt					
Recovered (a)	* 60 000	* 60 000	* 80 000	* 80 000	* 80 000
Libya					
Recovered (a)	—	—	133 300	—	* —
Morocco					
Recovered	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Namibia					
Recovered	12 068	62 633	72 283	78 612	72 923
South Africa					
Recovered (a) (b)	277 630	280 830	280 830	239 405	919 624
Zambia					
Recovered (b)	* 300 000	363 000	679 500	754 000	* 800 000
Canada					
Recovered (b)	558 000	635 300	524 000	505 000	520 000
Recovered (a)	5 187 000	4 746 100	4 802 900	4 828 000	6 418 000
Cuba					
Recovered	1 355	1 780	3 047	3 154	3 234
Recovered (a)	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Mexico					
Recovered (b)	* 556 000	* 556 000	* 556 000	* 556 000	* 556 000
Recovered (a)	858 527	673 285	551 218	442 657	729 934
Trinidad & Tobago					
Recovered (a)	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
USA					
Recovered (b)	646 000	673 000	575 000	670 000	* 620 000
Recovered (a)	8 890 000	9 070 000	9 070 000	9 010 000	* 8 200 000
Argentina					
Recovered (b)	* 23 000	* 23 000	* 20 000	* 20 000	* 20 000
Brazil					
Pyrites	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Recovered (b)	259 000	* 292 000	* 292 000	* 292 000	* 292 000
Recovered (a)	255 000	* 239 000	* 239 000	* 239 000	* 239 000
Chile					
Recovered (b)	1 488 326	1 595 595	1 524 437	1 476 456	1 263 119
Colombia					
Recovered (a)	8 170	7 653	6 980	* 7 000	* 7 000
Sulphur ore	76 239	76 331	64 856	—	—
Ecuador					
Recovered (a) (e)	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Peru (d)	* 556 000	* 556 000	* 556 000	* 556 000	* 556 000
Venezuela					
Recovered (a)	* 450 000	* 400 000	* 360 000	* 250 000	* 155 000
Bahrain					
Recovered (a)	* 120 000	* 120 000	* 110 000	* 100 000	* 120 000
China					
Pyrites	* 4 360 000	* 5 200 000	* 5 850 000	* 5 900 000	* 5 900 000
Recovered	* 12 930 000	* 11 800 000	* 11 590 000	* 11 600 000	* 11 600 000
India					
Recovered (b) (f)	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000
Recovered (a) (f)	473 322	560 826	825 173	890 400	892 894
Indonesia					
Recovered (b)	* 160 000	* 160 000	* 160 000	* 160 000	* 160 000
Recovered (a)	* 120 000	* 120 000	* 120 000	* 120 000	* 120 000

Production of sulphur and pyrites

tonnes (sulphur content)

Country	2015	2016	2017	2018	2019
Iran (d)	2 200 000	2 200 000	2 200 000	2 200 000	* 2 200 000
Iraq					
Recovered (a)	* 5 672 000	* 6 310 000	* 6 450 000	* 6 583 000	* 6 792 000
Israel					
Recovered (a)	71 627	71 104	* 71 000	75 934	* 76 000
Japan					
Recovered (b)	1 629 493	1 700 085	1 583 867	1 710 961	1 629 656
Recovered (a)	1 733 338	1 817 790	1 788 620	1 697 355	1 629 365
Jordan					
Recovered (a)	* 490 000	* 490 000	* 490 000	* 490 000	* 490 000
Kazakhstan					
Recovered (b)	* 604 000	* 604 000	* 604 000	* 604 000	* 604 000
Recovered (a)	2 514 900	2 546 500	2 947 300	* 2 620 000	* 2 625 000
Korea (Rep. of)					
Recovered (b)	* 1 078 000	* 1 078 000	* 1 078 000	* 1 078 000	* 1 078 000
Recovered (a)	1 450 000	2 000 000	2 000 000	2 000 000	2 000 000
Kuwait					
Recovered (a)	* 850 000	* 850 000	* 850 000	* 850 000	* 850 000
Oman					
Recovered (a)	* 49 000	* 50 000	* 48 000	* 49 000	* 48 000
Pakistan					
Sulphur ore (g)	19 730	14 869	23 740	22 040	20 715
Philippines					
Recovered (b)	* 169 900	* 169 000	* 169 000	* 169 000	* 169 000
Recovered (a)	* 45 000	* 45 000	* 45 000	* 2 500	* 2 000
Qatar					
Recovered (a)	* 1 705 200	* 1 713 600	* 1 661 100	* 1 669 500	* 1 648 500
Saudi Arabia					
Recovered (a)	* 3 800 000	* 3 900 000	* 3 700 000	* 3 900 000	* 3 700 000
Singapore					
Recovered (a)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Syria					
Recovered (a)	* 1 500	* 1 500	* 1 500	* 1 500	* 1 500
Taiwan					
Recovered	211 219	163 768	173 963	169 698	195 358
Thailand					
Recovered (b)	* 45 800	* 45 800	* 19 000	* —	* —
Recovered (a)	* 221 000	* 233 000	* 215 000	* 205 000	* 205 000
Turkmenistan					
Recovered (a)	* 383 000	* 383 000	* 380 000	* 365 000	* 363 000
United Arab Emirates					
Recovered (a)	* 2 465 000	* 2 554 000	* 2 467 000	* 2 474 000	* 2 523 000
Uzbekistan					
Recovered (b)	* 131 000	* 131 000	* 131 000	* 131 000	* 131 000
Recovered (a)	* 78 000	* 75 000	* 81 000	* 84 000	* 81 000
Australia					
Recovered (b)	* 810 000	* 810 000	* 810 000	* 810 000	* 810 000
Recovered (a)	* 90 000	* 90 000	* 90 000	* 90 000	* 90 000
New Zealand					
Recovered (a)	* 35 000	* 35 000	* 35 000	* 35 000	* 35 000
World total					
Pyrites	4 800 000	5 500 000	6 300 000	6 300 000	6 200 000
Frasch	600 000	600 000	700 000	600 000	600 000
Recovered	78 500 000	78 700 000	79 000 000	78 600 000	79 900 000
Sulphur ore	200 000	200 000	200 000	100 000	100 000

See notes on the following page

Production of sulphur and pyrites

Note(s)

(1) In addition to the countries listed Dem. P.R. of Korea may also produce pyrites and may recover sulphur from metal processing; Ukraine may also produce sulphur.

- (a) From petroleum refining and/or natural gas
- (b) From metal sulphide processing
- (c) Other
- (d) Sulphur; all forms
- (e) Including frasch
- (f) Years ended 31 March following that stated
- (g) Years ended 30 June of that stated

Production of talc

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	122 326	123 040	123 558	127 866	* 128 000
Finland	332 174	345 739	354 819	374 398	329 891
France	350 000	* 370 000	* 370 000	* 350 000	* 350 000
Italy	* 165 000	* 165 000	* 165 000	* 170 000	* 170 000
North Macedonia	—	—	400	319	—
Portugal	11 204	11 699	13 600	10 144	12 901
Russia	* 150 000	* 150 000	* 150 000	* 150 000	* 150 000
Slovakia	1 000	700	13 988	43 000	70 000
Spain	—	—	11 500	15 500	15 000
Turkey					
Talc	9 681	8 559	3 882	18 105	* 18 000
Pyrophyllite	172 681	194 665	470 600	* 470 000	* 470 000
United Kingdom	5 430	2 997	3 218	1 640	3 131
Egypt (a)	21 674	* 14 300	* 15 000	* 15 000	* 15 000
South Africa					
Talc	4 569	4 462	3 728	3 897	979
Pyrophyllite	16 801	19 114	55 048	98 245	134 451
Sudan	3 000	4 250	* 4 000	* 4 000	* 4 000
Canada	181 000	217 000	217 000	289 000	255 000
Guatemala	3 779	2 733	1 982	2 187	* 2 200
Mexico	20 452	11 392	7 129	8 448	* 8 500
USA	615 000	578 000	610 000	* 650 000	* 630 000
Argentina	27 386	11 262	8 335	11 728	* 11 700
Brazil (b)	642 600	657 000	850 000	660 000	650 000
Colombia (b)	55	103	2 374	2 062	1 680
Peru					
Talc	26 781	11 507	19 363	20 634	18 935
Pyrophyllite	26 209	17 872	22 760	26 675	25 039
Uruguay	590	290	100	420	50
Bhutan	5 807	2 261	1 293	2 042	1 375
China	1 846 000	1 642 000	1 276 000	* 1 400 000	* 1 400 000
India					
Pyrophyllite (c)	* 106 000	15 125	38 760	* 39 000	* 39 000
Steatite (c)	998 513	1 277 768	1 613 607	* 1 600 000	* 1 600 000
Iran (d)	137 135	118 960	82 095	48 750	* 48 500
Japan					
Talc	* 25 000	* 25 000	* 25 000	* 10 000	* 10 000
Pyrophyllite	* 350 000	* 350 000	* 350 000	* 160 000	* 160 000
Korea (Rep. of)					
Talc	6 371	2 247	2 834	1 887	2 626
Pyrophyllite	596 860	590 000	431 458	346 761	327 624
Nepal (e)	5 255	1 593	4 204	8 557	4 605

Production of talc

tonnes (metric)

Country	2015	2016	2017	2018	2019
Pakistan (a)	116 223	125 985	152 279	141 504	167 148
Saudi Arabia					
Pyrophyllite	8 000	42 000	44 000	46 000	* 46 000
Taiwan	162	250	—	17	6
Thailand					
Talc	6 768	6 886	7 436	7 756	8 064
Pyrophyllite	45 500	63 500	54 000	50 920	6 500
Australia	* 80 000	* 111 000	* 119 000	* 153 000	* 167 000
World total	7 200 000	7 300 000	7 700 000	7 500 000	7 500 000

Note(s)

(1) In addition to the countries listed, pyrophyllite may be produced in Vietnam.

(a) Years ended 30 June of that stated

(b) Including talc, agalmatolite and pyrophyllite

(c) Years ended 31 March following that stated

(d) Years ended 20 March following that stated

(e) Years ended 15 July of that stated

Production of tantalum and niobium minerals

tonnes (metric)

Country	2015	2016	2017	2018	2019
Russia					
Nb content	628	628	648	669	659
Ta content	32	49	45	44	32
Spain					
Ta content	—	—	—	—	14
Burundi					
Columbite-tantalite	53	32	74	* 75	* 75
Congo, Democratic Republic					
Columbite-tantalite	2 102	2 414	1 996	2 267	1 131
Ethiopia					
Tantalite (a)	59	63	65	* 70	* 40
Mozambique					
Tantalite	62 606	91 661	126 592	146 435	131 557
Columbite-tantalite	13	19	18	* 18	* 18
Nigeria					
Tantalite	* 60	28	19	0	1
Columbite	* 22	264	1 222	1 814	1 721
Rwanda					
Columbite-tantalite (b) (c)	2 086	1 485	1 327	1 861	1 519
Uganda					
Columbite-tantalite	—	13	11	7	7
Canada					
Pyrochlore	* 11 600	* 11 600	* 11 600	* 11 600	* 11 600
Nb content	5 753	6 099	6 981	* 7 000	* 7 000
Bolivia					
Tantalite	1	—	9	59	* 40
Brazil					
Pyrochlore	152 709	132 275	153 169	* 150 000	* 150 000
Columbite-tantalite	21 975	10 518	12 455	* 12 500	* 12 500
China					
Columbite-tantalite	* 250	* 260	* 300	* 360	* 400
Malaysia					
Struverite	86	77	61	274	* 270
Australia					
Tantalite	250	38	74	117	117
World total concentrates (d)	232 000	240 000	297 000	315 000	298 000
Nb content	67 000	59 000	57 000	58 000	57 000
Ta content	14 000	20 000	26 000	31 000	27 000

Note(s)

- (1) Niobium and tantalum minerals are also believed to be produced in Namibia and South Africa.
- (2) The figures in this table refer to gross tonnage of tantalum and niobium concentrates, except where noted.
- (3) Tantalum is also recovered from tin slags and this is believed to have accounted for approximately 20% of raw material supplied.

- (a) Years ended 7 July of that stated
- (b) Years ended 30th June of that stated
- (c) Exports
- (d) Excluding Russia and Spain

Production of refined tellurium

tonnes (metric)

Country	2015	2016	2017	2018	2019
Bulgaria	4	4	5	4	3
Russia	34	40	44	46	50
Sweden	33	39	35	45	41
Canada	9	18	17	* 17	* 15
China	210	279	291	357	461
Japan	34	28	34	55	* 55

Note(s)

(1) In addition to the countries listed, Germany and Belgium are believed to produce refined tellurium.

Mine production of tin

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Portugal	42	54	81	111	108
Russia	575	627	1 011	1 530	2 471
Spain	—	7	23	81	103
United Kingdom	—	160	255	* 230	—
Burundi	55	51	123	126	143
Congo, Democratic Republic	4 567	6 503	10 391	8 950	12 533
Egypt (a)	3	—	—	—	—
Namibia	—	—	—	—	3
Niger	8	* 8	* 8	—	—
Nigeria	2 298	3 443	8 626	7 852	1 211
Rwanda (b) (c)	3 071	2 200	2 592	3 190	2 688
Tanzania	134	104	68	6	18
Uganda	135	63	66	53	15
Bolivia	20 175	17 804	18 385	17 251	17 122
Brazil	25 000	26 000	18 000	17 100	17 000
Peru (d)	19 511	18 789	17 790	18 601	19 853
Burma	* 43 000	* 57 000	* 68 000	* 55 000	* 50 000
China	110 156	97 165	95 549	94 838	85 840
India (a)	10	9	13	16	12
Indonesia	70 400	69 500	78 070	82 809	77 468
Korea (Rep. of)	7	63	8	10	17
Laos	692	1 005	975	432	526
Malaysia	4 125	4 158	4 819	3 836	3 606
Mongolia (e)	* 3	* 25	* 16	* 26	* 20
Thailand	45	59	341	47	46
Vietnam	4 399	4 468	4 950	5 470	6 031
Australia	7 158	6 635	7 402	6 871	7 738
World total	316 000	316 000	338 000	324 000	305 000

Note(s)

(a) Years ended 31 March following that stated

(b) Years ended 30 June of that stated

(c) Exports

(d) Recoverable

(e) Estimate based on reported exports

Smelter production of tin

tonnes (metric)

Country	2015	2016	2017	2018	2019
Belgium	8 788	8 474	9 652	9 329	9 296
Poland	2 059	2 903	3 380	3 817	4 099
Russia	—	—	800	* 1 000	* 1 000
Rwanda	—	—	—	—	* 300
Bolivia (a)	15 464	16 810	16 648	15 611	15 111
Brazil	16 531	17 235	16 500	* 16 500	* 16 000
Peru	20 396	19 390	17 906	18 255	19 555
China	167 204	182 498	178 400	177 407	182 772
India (b)	17	—	14	7	—
Indonesia	* 67 400	* 66 900	78 070	83 015	76 389
Japan	1 688	1 620	1 624	1 647	1 547
Malaysia	30 209	26 802	27 172	27 085	25 752
Taiwan	* 2 700	* 2 800	* 2 800	* 2 800	* 3 800
Thailand	10 502	11 088	10 601	10 880	9 597
Vietnam	5 500	* 5 500	* 5 500	* 5 500	* 5 500
Australia	22	41	21	82	82
World total	348 000	362 000	369 000	373 000	371 000

Note(s)

(1) Figures relate to both primary and secondary metal.

(2) In addition to the countries listed, many countries produce small amounts of secondary metal.

(a) Refined, including alloys

(b) Years ended 31 March following that stated

Production of titanium minerals

tonnes (metric)

Country	2015	2016	2017	2018	2019
Norway					
Ilmenite	630 323	* 630 000	* 630 000	* 630 000	* 630 000
Russia					
Ilmenite	193 236	60 000	—	—	—
Ukraine					
Ilmenite	* 500 000	* 500 000	* 500 000	745 417	923 592
Rutile	* 90 000	* 90 000	* 90 000	106 858	* 94 000
Kenya					
Ilmenite	444 999	359 885	491 000	463 000	352 000
Rutile	78 947	69 975	87 167	98 132	85 796
Madagascar					
Ilmenite	166 290	267 962	430 479	381 924	461 800
Rutile	* 4 800	* 4 800	* 5 000	* 5 000	* 5 000
Mozambique					
Ilmenite	763 500	903 300	998 200	958 500	892 900
Rutile	6 000	7 800	9 100	8 200	8 300
Senegal					
Ilmenite	427 690	416 249	492 441	506 938	491 602
Leucoxene (a)	5 311	9 664	9 975	9 605	10 130
Sierra Leone					
Ilmenite	48 420	28 102	57 040	49 510	63 350
Rutile	126 021	148 541	165 470	108 320	136 790
South Africa					
Ilmenite (b)	* 1 280 000	* 1 020 000	* 550 000	765 000	* 820 000
Rutile	* 67 000	* 67 000	* 95 000	* 103 000	* 110 000

Production of titanium minerals

tonnes (metric)

Country	2015	2016	2017	2018	2019
Canada					
Ilmenite (b) (d)	* 1 900 000	* 1 800 000	* 2 300 000	* 2 000 000	* 2 100 000
USA	300 000	100 000	100 000	100 000	* 100 000
Brazil					
Ilmenite (c)	80 975	66 500	50 000	66 000	70 000
China					
Ilmenite	3 910 000	3 800 000	3 830 000	4 200 000	* 4 200 000
India					
Ilmenite (e)	626 135	594 978	284 667	265 931	* 265 000
Rutile (e)	16 723	14 898	11 829	11 045	* 11 000
Kazakhstan	* 17 000	* 17 000	* 17 000	* 17 000	* 17 000
Korea (Rep. of)					
Ilmenite	204 082	166 900	223 039	213 184	295 987
Malaysia					
Ilmenite	5 814	4 316	6 363	14 158	2 334
Rutile	198	3 810	5 266	5 070	5 947
Sri Lanka					
Ilmenite	39 439	26 159	53 734	60 847	43 779
Rutile	1 808	2 237	2 174	2 174	1 959
Thailand					
Ilmenite	—	—	8	41	5 095
Vietnam					
Ilmenite	237 700	210 800	225 300	235 126	271 097
Australia					
Ilmenite (f)	1 146 935	765 399	693 763	569 472	586 554
Rutile (f)	294 600	284 772	227 462	209 762	154 507
Leucoxene (f)	246 000	73 380	57 148	69 183	46 743
World total					
Ilmenite (wt of concs)	12 900 000	11 700 000	11 900 000	12 200 000	12 000 000
Rutile (wt of concs)	700 000	700 000	700 000	600 000	600 000
All forms (TiO ₂ content)	7 100 000	6 300 000	6 300 000	6 500 000	6 300 000

Note(s)

(1) The figures in this table refer to gross tonnage of titanium concentrates.

(2) Some ilmenite is converted to synthetic rutile in Australia, India, Japan and USA.

(a) Including natural rutile

(b) It is believed that the majority of this is processed into slag.

(c) Including synthetic rutile

(d) Canada produces some ilmenite which is sold as such and not processed into slag, but tonnages are small

(e) Years ended 31 March following that stated

(f) Years ended 30 June of that stated

Mine production of tungsten

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Austria	870	950	975	936	892
Portugal (a)	474	549	669	715	518
Russia	2 608	3 067	2 174	2 661	2 825
Spain	835	699	711	1 079	760
United Kingdom	195	923	1 370	* 1 240	—
Burundi	30	80	157	* 140	* 180
Congo, Democratic Republic	65	93	150	230	887
Nigeria	27	8	12	66	13
Rwanda (b) (c)	1 259	997	929	1 039	1 303
Uganda	28	32	47	144	110
Zimbabwe	* 200	1 248	* 1 000	—	—
Canada	2 114	—	—	* —	* —
Mexico	—	—	—	45	* 50
Bolivia	1 125	848	776	1 043	1 074
Brazil	432	323	* 411	* 400	* 400
Colombia	3	2	—	—	—
Peru	139	—	—	—	—
Burma (d)	169	167	272	303	220
China	66 545	63 956	67 472	64 938	75 452
Korea, Dem. P.R. of	* 70	* 50	* 300	* 1 370	* 1 130
Kyrgyzstan	* 100	* 100	* 100	* 100	* 100
Mongolia	1 024	710	* 660	* 543	* 463
Thailand (a)	38	37	52	81	45
Uzbekistan	* 300	* 300	* 300	* 300	* 300
Vietnam	4 063	5 041	5 178	4 350	4 816
Australia (b)	297	208	* 5	* 5	* 5
World total	83 000	80 400	83 700	81 700	91 500

Note(s)

(1) In addition to the countries listed, the USA is known to produce tungsten.

(a) Wolframite and scheelite

(b) Years ended 30 June of that stated

(c) Exports

(d) Including tungsten content of tin-tungsten concentrates

Mine production of uranium

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Czech Republic	134	128	59	34	33
Germany	—	45	34	—	24
Romania	* 77	* 50	* —	* —	* —
Russia	3 055	3 005	2 917	2 904	2 911
Ukraine	* 1 200	* 1 005	* 550	* 1 180	* 801
Namibia	2 950	3 657	4 529	5 882	5 622
Niger	4 115	3 478	3 485	2 910	2 863
South Africa	448	382	358	196	163
Canada	13 324	14 037	12 433	7 320	6 871
USA	1 287	1 123	941	565	65
Brazil	40	44	—	—	—
China	* 1 616	* 1 616	* 1 885	* 1 885	* 1 885
India	* 385	* 385	* 421	* 423	* 308
Iran	* 38	* —	* 40	* 71	* 71
Kazakhstan	23 607	24 586	23 321	21 705	22 808
Pakistan	* 45	* 45	* 45	* 45	* 45
Uzbekistan	* 2 385	* 2 404	* 2 404	* 2 404	* 2 404
Australia	5 656	6 235	5 713	6 562	6 553
World total	60 300	62 200	59 100	54 000	53 400
World total (U ₃ O ₈ equivalent)	71 100	73 400	69 700	63 700	63 000

Note(s)

(1) Excluding uranium production from decommissioning operations.

Mine production of vanadium

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Russia	16 196	16 886	18 636	17 052	18 380
South Africa	17 455	15 877	14 222	14 904	14 858
USA	—	—	—	—	* 470
Brazil	3 254	4 461	5 206	5 505	5 923
China	51 100	45 900	45 400	* 40 000	* 40 000
India (a)	1 124	1 125	* 400	442	* 400
Kazakhstan	* —	* —	* 1 000	* 1 000	* 1 000
World total	89 000	84 000	85 000	79 000	81 000

Note(s)

(1) This table includes vanadium in slag products but excludes vanadium recovered as a by-product of the refining and burning of heavy oils.

(a) Years ending 31 March following that stated

Production of vermiculite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Bulgaria	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Russia	8 282	12 363	9 262	25 904	29 266
Turkey	425	1 050	1 618	18 183	* 18 000
Egypt	8 190	* —	* —	* —	* —
Kenya	410	410	* 400	* 400	* 400
South Africa	138 290	166 483	166 084	141 346	158 013
Uganda	801	3 295	4 119	10 413	9 674
Zimbabwe (a)	30 868	29 020	23 302	33 161	* 30 000
Mexico	299	310	464	244	* 240
USA (a)	* 100 000	* 100 000	* 100 000	* 100 000	* 200 000
Argentina	90	60	—	—	* —
Brazil	70 000	55 000	55 000	50 000	* 60 000
China	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
India (b)	23 279	9 042	6 054	3 161	2 960

Note(s)

(a) Sold or used by producers

(b) Years ended 31 March following that stated

Production of wollastonite

tonnes (metric)

Country	2015	2016	2017	2018	2019
Finland	* 10 000	* 10 000	* 10 000	* 10 000	* 11 000
Spain	17 700	13 553	19 135	12 235	7 168
Mexico	57 451	63 683	98 449	145 814	100 897
USA	* 70 000	* 60 000	* 50 000	* 60 000	* 50 000
China	* 1 100 000	* 880 000	* 840 000	* 890 000	* 890 000
India (a)	175 348	166 186	153 049	184 063	129 002
Australia (b)	2 428	1 797	1 749	2 007	—

Note(s)

(1) In addition to the countries listed, Canada also produces wollastonite (since 2014).

(a) Years ended 31 March following that stated

(b) Years ended 30 June of that stated

Mine production of zinc

tonnes (metal content)

Country	2015	2016	2017	2018	2019
Armenia	6 791	4 735	5 784	6 497	6 743
Bosnia & Herzegovina	8 946	9 670	10 235	10 603	6 440
Bulgaria	10 783	11 415	10 886	11 367	14 570
Finland	25 332	45 852	66 284	85 335	68 153
Greece	13 174	18 866	17 300	21 456	22 298
Ireland, Republic of	236 300	147 797	130 580	131 742	122 500
Kosovo	3 986	4 814	4 468	3 619	3 089
Montenegro	7 068	8 100	8 800	10 700	9 500
North Macedonia	29 150	24 871	27 846	30 384	31 291
Poland	52 709	50 124	44 959	41 886	37 645
Portugal	61 921	69 527	71 356	144 983	161 569
Romania	* 3 000	* 1 600	* 800	* 300	* 1 300
Russia	206 000	248 000	275 000	296 000	305 000
Serbia	4 400	6 200	11 900	11 800	6 900
Slovakia	190	126	166	151	119
Spain	49 216	76 342	70 451	106 352	90 980
Sweden	246 983	258 264	251 244	237 715	247 657
Turkey	173 589	118 700	155 900	184 500	* 147 000
Algeria	50	314	* 500	* 500	* 500
Burkina Faso	68 804	81 422	92 731	99 162	90 439
Congo, Democratic Republic	12 675	12 587	12 377	1 129	1 607
Eritrea	—	40 900	95 400	125 000	121 260
Morocco	53 747	53 880	51 701	57 703	51 000
Namibia	123 529	124 749	132 854	118 435	114 735
Nigeria	* 14 000	* 14 000	* 22 000	* 27 000	* 23 000
South Africa	29 040	26 695	30 778	28 129	125 157
Sudan	46	—	* —	* —	* —
Zambia	—	—	—	* 2 000	* 2 000
Canada	289 584	301 210	346 776	304 964	323 019
Cuba	—	—	—	* 39 000	* 58 000
Dominican Republic	4 655	3 636	3 920	4 038	5 527
Guatemala	14 810	14 975	6 100	—	—
Honduras	24 988	14 579	20 436	28 421	29 223
Mexico	786 774	661 646	671 444	662 355	676 677
USA	824 700	804 800	773 800	824 000	* 753 000
Argentina	33 787	26 680	26 800	23 980	16 407
Bolivia	443 172	489 293	527 206	519 630	528 099
Brazil	157 000	158 200	156 500	169 800	163 400
Chile	48 071	42 870	29 008	26 810	5 620
Peru	1 421 218	1 337 081	1 473 037	1 474 383	1 404 382
Burma (a)	31 025	72 640	12 560	11 700	* 39 000
China	4 748 877	4 710 500	3 868 500	3 721 100	* 3 700 000
India (a)	740 737	755 778	772 600	728 586	726 517
Indonesia	* 19 300	* 8 500	* 13 900	* 20 100	* 26 200
Iran	168 200	157 300	140 000	130 000	* 130 000
Kazakhstan	369 300	351 000	345 000	346 000	295 700
Korea (Rep. of)	2 070	2 257	3 321	3 656	4 106
Korea, Dem. P.R. of	45 332	66 469	35 671	* 35 000	* 30 000
Laos	—	* 700	* 5 700	* 3 100	* 1 300
Mongolia	44 800	50 100	41 350	43 950	41 550
Pakistan (b)	—	7 702	19 457	26 979	37 365
Saudi Arabia	39 000	41 640	21 677	22 760	* 32 000
Tajikistan	50 400	73 900	81 500	84 213	* 90 000
Thailand	27 154	33 983	1 182	—	—
Uzbekistan	12 000	12 000	37 000	27 000	55 000
Vietnam	* 15 000	* 12 000	* 12 000	* 12 000	* 12 000
Australia	1 610 004	884 826	852 164	1 146 781	1 337 321
World total	13 400 000	12 600 000	11 900 000	12 200 000	12 300 000

Note(s)

(a) Years ended 31 March following that stated

(b) Years ended 30 June of that stated

Production of slab zinc

tonnes (metric)

Country	2015	2016	2017	2018	2019
Belgium (a)	260 000	236 000	249 000	275 000	271 200
Bulgaria	75 095	75 811	73 715	75 150	73 512
Finland	305 717	290 599	284 992	295 029	290 844
France	169 000	149 000	166 000	155 000	150 000
Germany	173 000	168 000	174 000	180 000	182 000
Italy	140 200	139 500	128 800	131 600	132 900
Netherlands	291 000	283 000	248 000	268 000	* 240 000
Norway	162 878	170 541	172 086	190 570	195 374
Poland	161 500	161 200	162 247	159 739	159 436
Russia	229 600	247 300	256 700	254 600	206 700
Spain	498 000	500 000	507 000	511 000	511 000
Ukraine	700	100	—	—	—
Algeria	7 086	3 101	1 472	2 045	543
Namibia	71 818	90 739	83 768	67 122	64 985
Canada	683 118	691 389	598 438	620 202	653 194
Mexico	326 642	321 159	327 003	336 378	388 588
USA	172 300	126 000	132 000	116 000	* 115 000
Argentina	30 300	—	—	—	—
Brazil	270 715	284 457	245 200	251 000	241 900
Peru	335 422	341 518	312 339	333 677	356 925
China	6 115 928	6 195 962	6 143 900	5 607 103	6 236 423
India (a)	758 944	672 010	791 461	696 283	563 254
Iran	138 000	135 000	140 000	130 000	144 000
Japan	566 619	533 689	523 919	521 110	526 717
Kazakhstan	323 848	325 820	331 018	317 965	318 387
Korea (Rep. of)	940 195	1 009 116	961 904	988 649	950 000
Korea, Dem. P.R. of	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Thailand	74 121	72 813	30 018	—	—
Uzbekistan	55 000	68 000	70 000	59 000	92 000
Vietnam	10 500	10 800	10 900	* 10 000	* 10 000
Australia	489 030	464 176	462 095	489 967	435 977
World total	13 900 000	13 800 000	13 600 000	13 100 000	13 500 000

Note(s)

(a) Years ended 31 March following that stated

Production of zirconium minerals

tonnes (metric)

Country	2015	2016	2017	2018	2019
Russia (a)	7 334	7 800	7 200	7 400	6 300
Ukraine	* 25 000	* 22 000	* 25 000	21 614	* 22 000
Kenya	25 951	27 671	65 324	36 604	48 356
Madagascar	11 879	15 582	21 000	22 757	28 500
Mozambique	51 800	68 200	74 000	76 600	87 100
Nigeria	* 960	891	* 900	531	* 500
Senegal	45 248	105 254	61 562	64 278	58 432
Sierra Leone	1 389	* 1 400	* 1 400	* 1 400	* 1 400
South Africa	* 387 000	* 360 000	* 377 000	* 350 000	* 370 000
USA	80 000	* 80 000	80 000	100 000	* 100 000
Brazil (b)	22 647	21 302	* 21 000	* 20 000	* 20 000
China	* 33 500	* 33 500	* 33 500	* 33 500	* 33 500
India (c)	18 437	11 709	9 107	11 906	* 12 000
Indonesia (d)	* 31 000	* 35 000	* 29 000	* 54 000	* 73 000
Malaysia	826	653	1 595	509	449
Sri Lanka	614	7 749	8 569	785	917
Vietnam	* 1 000	* 6 000	* —	* 4 000	* 3 000
Australia (e)	607 836	620 136	583 339	414 672	472 009
World total	1 352 000	1 425 000	1 399 000	1 221 000	1 337 000

Note(s)

(1) In this table the term 'zirconium minerals' is understood to mean zircon, unless otherwise stated.

(a) Baddeleyite concentrate

(b) Including caldasite rock containing zircon and baddeleyite

(c) Years ending 31 March following that stated

(d) Conservative BGS estimates, based on exports

(e) Years ended 30 June of that stated

APPENDIX 1

Additional tables relating to Europe only

Production of primary aggregates (sand and gravel and crushed rock)

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria					
Sand and gravel (a)	29 469 566	29 347 490	29 658 112	29 110 797	29 943 517
Crushed rock (a)	24 744 662	24 862 807	25 451 296	27 684 134	* 27 000 000
Belgium					
Sand and gravel	* 19 000 000	* 20 000 000	* 19 000 000	* 15 500 000	* 15 500 000
Crushed rock	* 45 000 000	* 46 000 000	* 46 000 000	* 45 000 000	* 45 000 000
Bulgaria					
Sand and gravel (a)	9 607 887	8 571 694	9 860 186	8 610 204	8 189 735
Crushed rock (a)	27 515 503	19 379 125	16 444 761	21 468 893	22 769 369
Croatia					
Sand and gravel	3 544 899	3 444 036	3 766 684	3 646 945	4 105 831
Cyprus					
Crushed rock	3 941 378	5 482 913	7 034 430	7 978 133	8 422 664
Czech Republic					
Sand and gravel	19 546 000	18 338 000	19 848 000	20 473 000	19 982 000
Crushed rock	40 260 000	37 793 000	38 262 000	41 648 000	42 225 000
Denmark					
Sand and gravel	45 215 000	47 058 000	49 323 000	48 950 000	47 770 000
Crushed rock	233 000	232 000	283 000	537 000	* 540 000
Estonia					
Sand and gravel	7 035 400	7 269 100	6 733 400	6 467 500	7 746 800
Crushed rock	5 366 300	6 224 000	7 704 100	6 148 300	5 771 800
Finland					
Sand and gravel	* 32 000 000	* 35 000 000	* 28 200 000	* 24 500 000	* 25 000 000
Crushed rock	* 44 000 000	* 43 000 000	* 48 700 000	* 51 100 000	* 52 000 000
France					
Sand and gravel	117 875 000	120 382 000	123 865 000	126 365 000	* 126 500 000
Crushed rock	184 423 000	183 960 000	187 233 000	195 998 000	* 195 500 000
Germany					
Sand and gravel	239 000 000	247 000 000	257 000 000	259 000 000	255 000 000
Crushed rock	210 000 000	218 000 000	220 000 000	226 000 000	217 000 000
Greece	35 603 020	42 051 690	38 339 770	34 439 069	* 34 000 000
Hungary					
Sand and gravel	33 664 690	29 829 848	37 984 379	46 866 306	* 47 000 000
Crushed rock	10 213 538	9 002 304	9 097 923	11 404 086	* 11 500 000
Iceland					
Sand and gravel	* 291 000	* 291 000	* 291 000	* 291 000	* 291 000
Ireland, Republic of					
Sand and gravel	* 7 000 000	* 7 000 000	* 7 000 000	* 7 000 000	* 7 000 000
Crushed rock	* 22 000 000	* 23 000 000	* 23 000 000	* 23 000 000	* 23 000 000
Italy					
Sand and gravel	46 552 088	59 911 685	63 627 458	69 575 607	32 060 000
Crushed rock	56 923 130	54 850 309	57 663 627	34 169 132	* 32 060 463
Latvia					
Sand and gravel	9 716 013	9 181 594	11 417 545	13 668 753	12 951 427
Crushed rock	1 461 820	1 547 520	2 069 297	2 101 489	* 2 100 000
Lithuania					
Sand and gravel	7 751 342	8 227 013	9 805 230	9 992 563	11 675 361
Crushed rock	4 567 866	4 365 787	6 392 084	7 340 099	7 517 080
Malta					
Crushed rock	1 514 976	1 551 411	(b) 1 426 820	(b) 1 682 385	(b) 1 739 310
Montenegro					
Sand and gravel	258 120	178 906	173 670	159 528	156 612
Crushed rock	124 141	184 976	212 697	166 550	* 160 000
Netherlands					
Sand and gravel	61 900 000	55 900 000	43 600 000	64 800 000	* 65 000 000
Norway					
Sand and gravel	13 000 000	14 959 000	14 696 000	13 478 000	13 863 000
Crushed rock	61 000 000	70 043 000	75 845 000	80 301 000	84 412 000
Poland					
Sand and gravel	167 928 000	173 175 000	186 296 000	197 005 000	182 811 000
Crushed rock	60 665 300	59 448 000	67 617 000	80 161 000	81 562 000
Portugal					
Sand and gravel	6 638 053	5 753 545	6 526 376	7 068 638	8 397 126
Crushed rock	25 339 949	25 939 048	28 789 458	30 620 462	31 715 050
Romania					
Sand and gravel	69 894 594	* 53 500 000	* 55 000 000	* 59 000 000	* 60 000 000
Crushed rock	40 091 390	* 34 000 000	* 31 000 000	* 28 000 000	* 28 000 000

Production of primary aggregates (sand and gravel and crushed rock)

tonnes (metric)

Country	2015	2016	2017	2018	2019
Slovakia					
Sand and gravel	1 199 550	1 306 800	1 743 489	2 096 000	1 982 000
Crushed rock	14 274 900	12 833 100	13 518 792	12 790 000	11 551 000
Slovenia					
Sand and gravel	2 943 870	1 833 732	2 047 403	1 810 666	1 437 101
Crushed rock	8 108 113	7 470 433	8 642 881	10 282 002	9 550 639
Spain					
Sand and gravel	34 000 000	31 000 000	37 000 000	42 600 000	44 000 000
Crushed rock	70 400 000	100 000 000	68 000 000	70 000 000	74 000 000
Sweden					
Sand and gravel	13 038 828	11 927 694	11 774 505	12 187 744	* 12 300 000
Crushed rock	75 271 803	75 720 385	84 467 197	91 730 406	* 92 800 000
Switzerland					
Sand and gravel	* 35 470 000	* 36 630 000	* 35 750 000	* 34 910 000	* 34 610 000
Crushed rock	2 463 037	2 324 800	2 194 123	2 410 000	2 380 000
United Kingdom					
Sand and gravel	66 443 000	68 075 000	67 548 000	69 882 000	66 800 000
Crushed rock (c)	119 401 000	125 301 000	125 739 000	129 998 000	128 200 000
European total	2 295 000 000	2 340 000 000	2 381 000 000	2 469 000 000	2 435 000 000

Note(s)

- (1) So far as possible, these production statistics include construction sand; gravel, pebbles, shingle and flint; crushed stone used for concrete aggregates, roadstone and other construction uses; granules, chippings and powders.
 - (2) Where official sources show more than one series for aggregates the higher series has generally been used in this table.
 - (3) Where marine sands and gravels have been identified, these are included.
 - (4) Information may be incomplete or absent due to reporting methods, confidentiality or lack of available information.
 - (5) Production from many small operations are not officially compiled. The minimum number of employees for which establishments are required to report production varies between different countries and can also vary from year to year.
 - (6) Quantities of sand from sand and gravel operations may be discarded due to low demand. This may or may not be included in the statistics.
- (a) Sales
- (b) Estimated by official source based on a previous year census and the rate of change observed from a sample of quarries in subsequent years
- (c) Includes small quantities for other purposes in Northern Ireland

Production of cement clinker

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria	* 125 000	* 125 000	* 125 000	* 125 000	* 125 000
Belgium	* 900 000	* 850 000	800 584	809 079	* 810 000
Bulgaria	44 500	61 100	79 800	* 80 000	* 80 000
Cyprus	1 729 877	1 801 647	1 815 568	1 671 205	1 643 193
Czech Republic	2 919 190	3 188 086	3 236 047	3 514 288	3 722 188
Estonia	356 000	328 900	517 900	505 300	503 600
France	12 513 000	12 528 000	12 357 000	12 845 000	* 12 000 000
Germany	23 355 000	23 423 000	* 23 000 000	22 835 000	22 923 753
Greece	* 6 000 000	5 891 157	7 088 107	6 576 608	6 570 602
Hungary	376 309	* 400 000	* 400 000	* 400 000	* 400 000
Italy	14 429 977	13 677 374	18 164 817	13 354 776	14 855 163
Latvia	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000
Luxembourg	* 700 000	* 700 000	* 700 000	* 700 000	* 700 000
Norway	1 284 156	1 306 292	1 461 477	1 429 400	1 407 000
Poland	11 278 400	12 075 300	12 996 500	14 221 000	14 178 000
Portugal	5 626 409	4 412 793	4 854 448	4 294 389	4 288 798
Romania	6 203 413	5 932 979	6 189 799	6 586 702	7 208 688
Serbia	1 218 213	1 311 629	* 1 300 000	* 1 300 000	* 1 300 000
Slovakia	* 1 700 000	* 1 700 000	* 1 800 000	* 1 900 000	* 2 000 000
Spain	16 985 662	17 341 318	17 304 352	18 266 325	17 226 700
Sweden	2 825 883	2 847 000	2 768 000	2 957 600	2 539 000
Turkey	61 971 380	67 856 234	70 812 559	70 343 788	57 799 787
United Kingdom	7 804 000	8 056 000	7 824 000	7 734 000	7 830 000
European total	182 000 000	187 000 000	197 000 000	194 000 000	182 000 000

Production of finished cement

tonnes (metric)

Country	2015	2016	2017	2018	2019
Austria (a)	4 176 063	4 501 008	4 660 187	5 227 834	4 520 074
Belgium	6 275 000	6 255 000	6 491 000	6 643 000	* 6 600 000
Bulgaria (a) (b)	2 040 853	1 951 286	2 064 792	2 208 116	2 371 458
Croatia	4 498 264	4 325 467	5 134 160	5 144 991	5 107 790
Cyprus	788 168	1 018 537	1 319 351	1 357 991	1 537 017
Czech Republic	3 781 000	3 937 000	4 033 854	4 427 713	4 569 379
Denmark	2 027 843	2 259 902	2 359 131	2 372 246	2 440 600
Estonia (a)	395 000	398 800	502 900	526 900	411 300
Finland (a)	1 188 387	1 335 248	1 510 974	1 462 240	1 430 226
France	15 597 000	15 934 000	16 851 000	16 537 000	* 16 000 000
Germany	31 160 000	32 674 000	33 991 150	33 654 985	34 185 000
Greece	5 291 113	6 680 078	6 334 960	6 676 881	* 6 300 000
Hungary	* 1 277 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Ireland, Republic of	2 911 000	* 2 100 000	* 2 100 000	* 2 100 000	* 1 700 000
Italy	20 013 662	19 992 976	25 328 555	18 644 359	19 481 760
Latvia	1 018 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Lithuania	979 565	1 009 936	1 023 437	1 150 635	1 222 934
Luxembourg	1 033 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Netherlands	1 839 000	* 1 970 000	* 2 070 000	* 2 236 000	* 2 303 000
North Macedonia	671 542	855 295	900 836	920 810	896 030
Norway	1 647 566	1 745 614	1 924 388	1 856 800	1 780 000
Poland	15 265 200	15 782 400	17 254 400	18 957 000	18 946 000
Portugal (a)	5 050 802	4 100 010	3 792 733	3 963 088	4 137 461
Romania	8 356 162	8 037 717	8 441 574	8 951 154	9 932 359
Serbia	1 654 390	(b) 1 774 404	1 907 689	2 092 501	2 151 000
Slovakia	3 465 597	3 518 456	3 781 889	3 912 674	4 030 506
Slovenia	544 000	* 700 000	* 700 000	* 700 000	* 700 000
Spain	14 322 672	14 286 013	15 548 943	16 214 663	16 998 100
Sweden	2 766 983	2 795 000	3 067 400	3 152 300	2 844 000
Switzerland (c)	4 219 466	4 397 180	4 272 316	4 289 000	4 210 000
Turkey	71 418 945	75 403 325	80 552 257	71 830 736	56 528 236
United Kingdom	9 235 000	9 370 000	9 359 000	9 197 000	9 079 000
European total	245 000 000	252 000 000	270 000 000	259 000 000	245 000 000

Note(s)

(a) Sales

(b) Portland cement only

(c) Includes production in Liechtenstein

APPENDIX 2

Further acknowledgments

Further Acknowledgments

In addition to the acknowledgments section on page iv, supplementary information is also obtained from publications dealing with a wide range of commodities such as African Development Bank Group, *African Statistical Yearbook*; BP PLC, *BP Statistical Review of World total Energy*; Austrian Federal Ministry of Science, Research and Economy, *World total Mining Data*; Société de l'Industrie Minérale, *Annuaire Statistique Mondial des Minerais et Métaux*; publications of the Interstate Statistical Committee of the CIS and World total Bureau of Metal Statistics, *World total Metal Statistics and Metallstatistik*.

Information has been obtained from the websites of the following international organisations: ALACERO; La Banque des Etats de l'Afrique Centrale (BEAC); CEMBUREAU The European Cement Association; Extractive Industries Transparency Initiative (EITI); European Aggregates Association (UEPG); Eurostat; Federacciai; International Tin Association Ltd; Kimberley Process; South East Asia Iron and Steel Institute (SEAISI); The European Steel Association (EUROFER); The Silver Institute; United Nations agencies; United States Energy Information Administration; United States Geological Survey; World total Nuclear Association; World total Steel Association.

In addition, information has been obtained from the websites of the following companies: ALRO S.A.; Aluar; Alumina Ltd; Aluminium Bahrain; Anglo Asian Mining Plc; AngloGold Ashanti; Arab Potash Company; ARMZ Uranium Holding Co; Ascendant Resources Inc; Asian Mineral Resources Ltd; Aura Minerals Inc; Avesoro Resources Inc; AzerGold; B2Gold; Barrick Gold Corporation; BEB Erdgas und Erdöl GmbH & Co; Besra Gold Inc; BHP Group; Bikita Minerals; Boliden Group; Cámara Argentina del Acero; Camimex; Canadian Clay Products Inc; Cancero; Centamin Plc; Centerra Gold Inc; Chaarat Gold Holding; CI Resources Ltd; Conic Metals Corp; Dominion Salt; Dundee Precious Metals Inc; Elem; Endeavour Mining; Endiama EP; Eramet Group; ETI Aluminium Inc; EVRAZ Plc; Faboula; Fenix Metals Ltd; First Quantum Mineral Ltd; Galaxy Resources; Galane Gold; Gemfields Ltd; Glencore International AG; Grafitbergbau Kaisersberg GmbH; Gravita India Ltd; Grecian Magnesite SA; HeidelbergCement AG; Highlands Pacific Ltd; Hudson Resources Inc; Hummingbird Resources; IAMGold Corporation; Inception Mining Inc; Israel Chemicals Company; IRC Company Limited; Johnson Matthey; KAZ Minerals Plc; Kenmare Resources Plc; LARCO; Largo Resources Ltd; Lundin Mining Corporation; Lynas Corporation Ltd; Ma'aden Saudi Arabian Mining Company; Malaysia Smelting Corporation; Managem Group; Mandalay Resources Ltd; Masan Resources Corporation; Maya Gold & Silver Inc; MedcoEnergi; Minera Alumbra; MMG Limited; National Aluminium Company Ltd; Nedmag B.V.; Nemaska Lithium Inc; Nevsun Resources Ltd; Newcrest Mining Ltd; Newmont Mining Corporation; Nexa Resources S.A.; Nickel Asia Corporation; Nordgold; Norilsk Nickel; Norsk Hydro ASA; Northern Minerals; Nyrstar; OCP Group; OFZ Inc; OM Holdings Ltd; Orocobre Ltd; Orosur mining Inc; Orvana Minerals Corp; Outokumpu; Paladin Energy Ltd; Pan American; PanAust Ltd; PEMEX Petróleos Mexicanos; Peñoles; PhosAgro; Polymetal International PLC; PT Antam Tbk; PT Indonesia Asahan Aluminium; PT Merdeka Copper Gold Tbk, Indonesia; Qatalum; Qatar

Steel Company; QKR Corporation; Rainbow Rare Earths Limited; Resolute Mining; Rio Tinto Ltd; Ronphos Corporation; Roxgold Inc; Robex Resources; Rossing Uranium; RUSAL; RW Silicium GmbH; Salinen Austria AG; Semafo Inc; Serbia Zijin Bor Copper DOO; Scheelite Minerals; Sherritt International Corporation; SMZ Company; Solway Investment Group Ltd; South32; Southern Copper Corporation; Swakop Uranium; Syrah Resources Ltd; Tahoe Resources; Talco; Talum Group; Tasmania Mines Ltd; Teranga Gold Corporation; Thailand Smelting and Refining Co., Ltd (THAISARCO); TiZir Ltd; Treibacher Industrie AG; Trevali Mining Corporation; United States Antimony Corporation; Uralkali; Vale; Vargon Alloys AB; Vedanta Resources; Verband der Kali - und Salzindustrie EV; Weatherly International Plc; Wolf Minerals Ltd; Wolfram Bergbau und Hütten AG; Zavalievsky Graphite Ltd; Zijinming.

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Danish Energy Agency, Denmark; Statistics Denmark; Dirección General de Minería, Dominican Republic; Autoridade Nacional do Petróleo e Minerais, East Timor; Agencia de Regulación y Control Minero, Ecuador; Central Agency for Public Mobilisation and Statistics, Egypt; Dirección Reguladora de Hidrocarburos y Minas, Ministerio de Economía, El Salvador; Reserve Bank of Fiji; Statistics Estonia; Fiji Bureau of Statistics; Geological Survey of Finland; Bureau de Recherches Géologiques et Minières, France; Federation Française de l'Acier, France; Infociments, France; L'Union nationale des industries de carrières et matériaux de construction, France; National Statistics Office of Georgia; National Agency for Mines, Georgia; Federal Institute for Geosciences and Natural Resources, Germany; Chamber of Mines, Ghana; Bank of Ghana, Ghana; Ministry of Environment and Energy, Greece; Greek Institute of Geology and Mineral Exploration, Greece; Greek Statistical Authority, Greece; Greek Mining Enterprises Association, Greece; Ministerio de Energía y Minas, Guatemala; Direction Nationale de la Statistique, Guinea; Bank of Guyana.

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